DOCUMENT RESUME

ED 320 858 SP 032 102

TITLE	Stress Management. Program Evaluation Handbook.
INSTITUTION	IOX Assessment Associates, Culver City, CA.
SPONS AGENCY	Centers for Disease Control (DHHS/PHS), Atlanta, GA.; National Inst. of Mental Health (DHHS), Bethesda, Md.; Public Health Service (DHHS), Rockville, MD. Office of Disease Prevention and Health Promotion.
PUB DATE	88
NOTE	149p.; For the other titles in this series, see SP 032 099, SP 032 101-105, and SP 032 107.
AVAILABLE FROM	IOX Assessment Associates, 5420 McConnell Ave., Los Angeles, CA 90066 ($17.95).
PUB TYPE	Guides - Non-Classroom Use (055)
EDRS PRICE	MF01/PC06 Plus Postage.
DESCRIPTORS	Affective Measures; Attitude Measures; Coping; *Evaluation Criteria; Evaluation Methods; *Program Evaluation; *Psychometrics; Questionnaires; *Stress Management

ABSTRACT

Intended as a resource for individuals wishing to evaluate stress management programs, this handbook, one of a series of seven, provides a collection of measuring devices that can improve the quality of such evaluations. Chapter 1 introduces the handbook's contents and outlines evaluation related issues specific to stress management programs. Chapter 2 introduces the key operations involved in program evaluation, emphasizing the role of assessment instruments in the gathering of information needed for defensible evaluations. Chapter 3 contains the measuring tools designed to be used in the evaluation and design of stress management programs. These measures deal with behavior, knowledge, skills, and affective outcomes. Each measure is introduced by a brief description of the purpose of the assessment instrument, as well as procedures for administering, scoring, and analyzing the resulting data. Chapter 4 describes how technical appraisals of the handbook's measures can be carried out. The three appendices contain amplified content descriptors for updating the various measures, an explanation of informed consent procedures, and an annotated bibliography. (JD)

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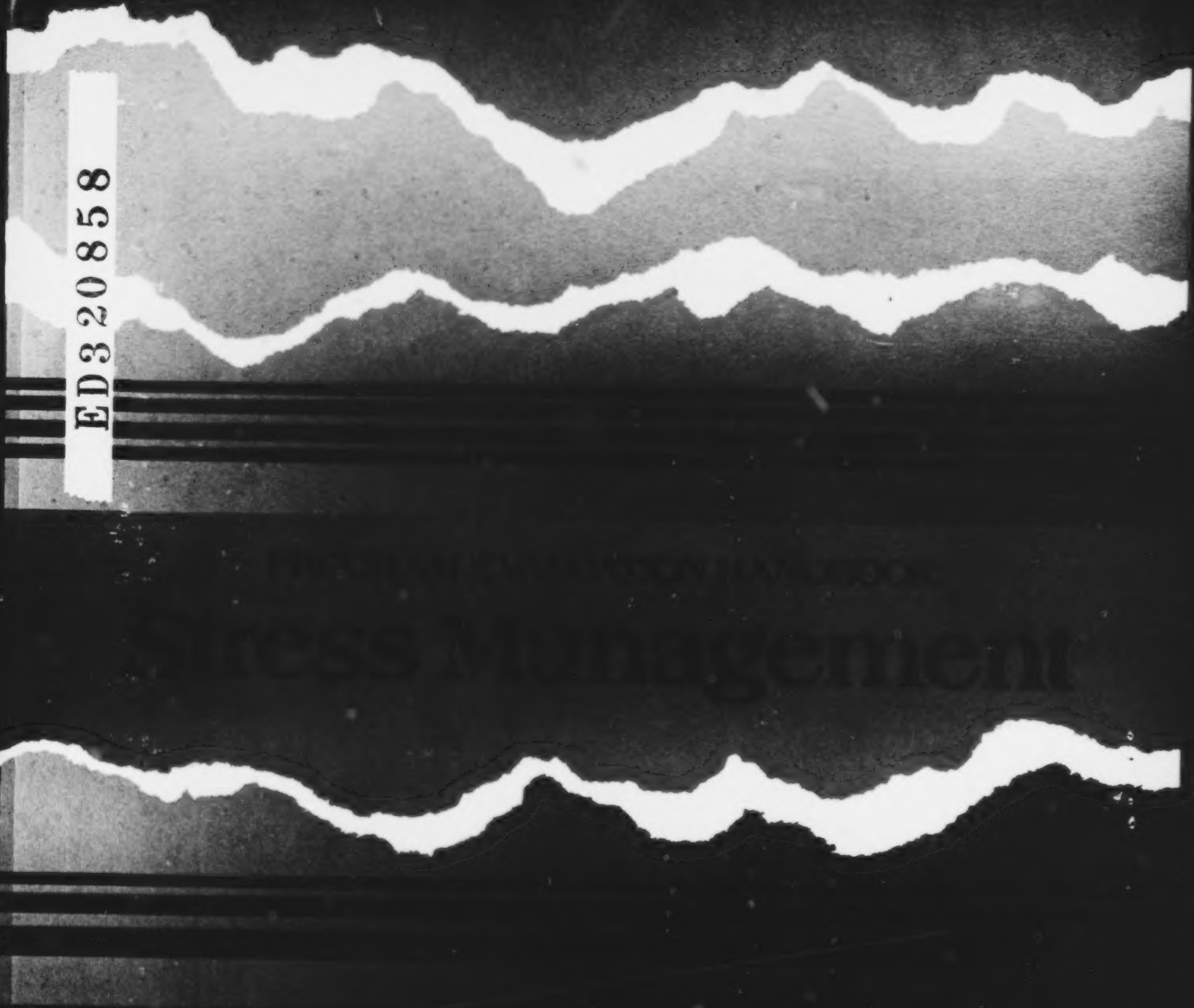

PROGRAM EVALUATION HANDBOOK

Stress Management

SP 032 102

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PROGRAM EVALUATION HANDBOOK

STRESS MANAGEMENT

Prepared for

The Center for Health Promotion and Education
United States Centers for Disease Control

The Office of Disease Prevention and Health Promotion
Office of the Assistant Secretary for Health
United States Department of Health and Human Services

The National Institute of Mental Health
Office of the Assistant Secretary for Health
United States Department of Health and Human Services

by

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1988

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Preface

In recent years, health educators have increasingly recognized that systematic evaluation can help them appraise and improve their programs. For this potential to be realized, however, effective mechanisms for gathering relevant data are required. In the past, critical information about a program's effects was not collected in some instances because suitable measures for gauging those effects were lacking. The purpose of this handbook is to rectify, at least in part, this deficiency in the evaluation of health education programs dealing with stress management.

This book is one of seven health education evaluation handbooks resulting from a project jointly initiated in 1980 by the United States Centers for Disease Control (CDC) and the Office of Disease Prevention and Health Promotion (ODPHP) of the Office of the Assistant Secretary for Health. The handbook is not intended to be prescriptive or all-inclusive. Those who evaluate stress management programs should regard the handbook as only a resource, that is, a collection of assessment tools that may be of use in program evaluation. The extent to which the handbook will actually be useful depends chiefly on the extent to which it contains assessment tools that correspond to the evaluation needs of a particular stress management program.

Handbook Development

This handbook has been created by IOX Assessment Associates (IOX), selected competitively on the basis of responses to a governmentally issued request for proposals. IOX was to collect and develop program evaluation measures for critical behavioral, knowledge, skill, and affective outcomes in the area of stress management. Three panels of experts played prominent roles in the creation of this handbook. A **Handbook-Development Panel**, consisting of six experts familiar with stress management programs or their evaluation, guided the initial development of the handbook. The Handbook-Development Panel identified important outcomes for stress management programs. IOX staff, drawing on the advice of panelists, then developed assessment instruments to assess panel-identified program outcomes. The names and affiliations of the Stress Management Handbook-Development Panelists are provided below:

Handbook-Development Panel

Dr. Barbara Estabrook
Multi-Group Health Plan
Wellesley, Massachusetts

Dr. E.M. Gherman
American Institute of Stress
Yonkers, New York

Dr. Daniel Girdano
ECOTOPIA Institute
Winter Park, Colorado

Dr. Donald Iverson
University of Colorado
Denver, Colorado

Dr. Jason Millman
Cornell University
Ithaca, New York

Dr. Paul Rosch
American Institute of Stress
Yonkers, New York

The Handbook-Development Panel met at the beginning of the project in order to isolate the chief outcomes that stress management programs could reasonably be expected to promote. Preliminary statements reflecting these outcomes were identified by the panelists. These preliminary outcome statements were refined by IOX staff and mailed to the panelists and other interested specialists, all of whom rated the importance of each statement. The list of high-priority outcomes that resulted was used to guide the selection and development of the original handbook's measures.

All newly developed measures were mailed to the panelists for review. In addition, all of these measures were tried out with small groups of respondents. The measures were revised based on the informal tryouts and the panelists' review comments. All of the new measures were also reviewed by IOX staff in an effort to eliminate any potential ethnic, gender, religious, or socioeconomic bias.

A completed version of the stress management handbook was delivered to the government in 1983. Several thousand copies of the handbook were released by CDC and ODPHP to health educators throughout the nation.

Handbook Revision

Subsequent to the initial distribution of the handbook, CDC issued, in concert with (1) ODPHP and (2) the National Institutes of Mental Health (NIMH), a second request for proposals which led to the comprehensive revision of the existing stress management handbook. To guide the review and revision of the stress management handbook, a **Handbook-Revision Panel** was constituted. Members of the panel were selected because of their dual expertise in (1) the field of stress management and (2) measurement of the outcomes sought by stress management programs. Members of the Handbook-Revision Panel and their affiliations are listed below:

Handbook-Revision Panel

Dr. Jonathan E. Fielding
U.S. Corporate Health Management
and University of California
Los Angeles, California

Dr. Susan Folkman
University of California
Berkeley, California

Dr. Leo Goldberger
New York University
New York, New York

Dr. Edward Katkin
State University of New York
Buffalo, New York

Dr. Richard S. Lazarus
University of California
Berkeley, California

Dr. Rudolph H. Moos
Stanford University
Stanford,California

The Handbook-Revision Panel met on two occasions. In these meetings panelists reviewed the contents of the initial version of the stress management handbook, particularly its measures, and suggested deletions, modifications, or additions. Panelists also provided guidance regarding ways of making the handbooks more usable to practitioners. During both of these meetings, the panelists were attentive to the accuracy of the handbook's contents. Considerable content, in the measures as well as the introductory materials, was revised or deleted on the basis of panelists' suggestions.

Overall Guidance

A third panel, the **Project Advisory Panel**, provided overall guidance to IOX staff during the final three years of the project. These individuals offered technical counsel and strategic advice during the revision of all handbooks. Members and affiliations of the Project Advisory Panel are listed below:

Project Advisory Panel

Dr. Peter A. Cortese
California State University
Long Beach, California

Dr. Lawrence W. Green
Henry J. Kaiser Family Foundation
Menlo Park, California

Dr. William L. Haskell
Stanford University
Stanford, California

Dr. Jonathan E. Fielding
U.S. Corporate Health Management
and University of California
Los Angeles, California

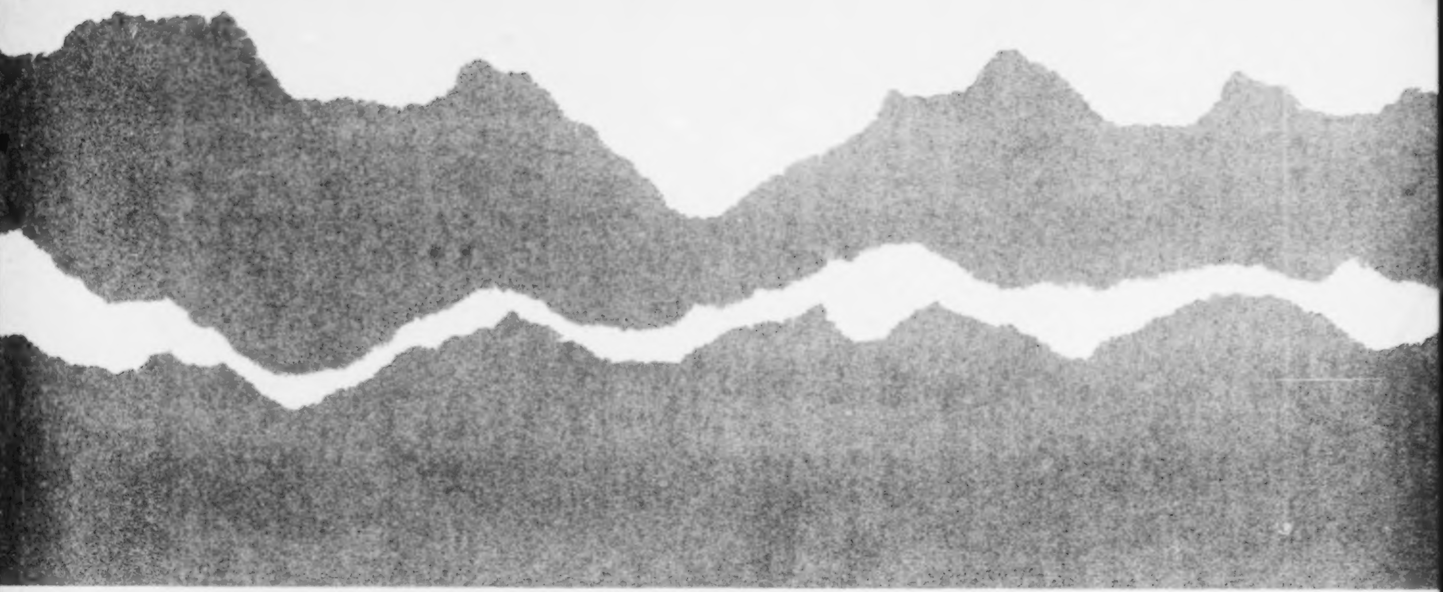
Acknowledgments

The project that led to the creation of this handbook was funded by the CDC, ODPHP, and NIMH. Dr. Walter J. Gunn of CDC conceptualized the project and supplied technical guidance throughout its first phase. During this time, Dr. Diane Orenstein of CDC as well as Dr. Donald Iverson and Dr. Patricia Mullen, both of ODPHP, served as project officers.

During the project's second phase, that is, the revision of the handbook, Dr. Orenstein of CDC continued to serve as project officer along with Dr. Joel Kavet, Dr. Gregory Christenson and Mr. James Harrell of ODPHP. Anita G. Eichler of NIMH provided continuing counsel during the revision phase of the project.

As the handbook progressed, numerous health educators throughout the nation offered their insights regarding the handbook's contents. Without their expert assistance, development of this volume would have been impossible.

IOX Assessment Associates
July, 1988



CHAPTER ONE

A Resource for the Evaluation of Stress Management Programs

A Resource for the Evaluation of Stress Management Programs

This handbook is intended to help those individuals who wish to evaluate health education programs dealing with stress management. More specifically, the handbook provides a series of measuring devices that, if selected and used judiciously, can improve the quality of such evaluations. As a consequence, not only will the technical quality of the program evaluation be improved, but any program-related decisions based on the evaluation's results are apt to be more defensible.

An Evidence-Oriented Era

In recent years, educators have experienced substantially increased pressures to produce evidence that their programs are functioning effectively. In contrast to an earlier era when it was widely thought that most educational programs were worth the money they cost, today's educators find that they are constantly called on to justify the effectiveness of their programs.

The kinds of evidence that health educators have been required to assemble regarding program effectiveness have, almost without exception, involved the use of various kinds of assessment instruments. Consonant with that requirement, this handbook contains numerous tests and inventories designed to secure the evidence needed to judge the effectiveness of stress management programs. The handbook's measuring instruments were created specifically to assess important goals of the most common types of stress management programs offered for adults (in industrial or clinical settings) and for children (in school- related programs).

The handbook, accordingly, makes available to those who operate stress management programs the assessment tools by which the effectiveness of such programs can be determined. The evidence of program effectiveness currently being demanded of stress management personnel can, therefore, be provided by appropriate use of the handbook's assessment instruments. Moreover, as will be indicated shortly, appropriate use of the handbook's numerous assessment devices can substantially improve the *design* of stress management programs.

Measurement and Program Design

Historically, assessment devices have been thought of as instruments to be used *after* a program was concluded. Teachers, for example, have traditionally administered tests *after* instruction was over in order to grade students. However, even though assessment instruments have often been post-instruction creations of instructors, such instruments can make important—often overlooked—contributions to the original design of an instructional program. Properly developed assessment tools, in fact, can contribute to program design in two significant ways.

First, because assessment instruments are typically intended to measure outcomes of interest, such assessment instruments provide program personnel with a range of potential outcomes. An increased range of possible program outcomes generally leads to the *selection of more defensible outcomes* for health education programs. To illustrate, there may be an assessment instrument dealing with an attitudinal dimension that, were it not for the measuring instrument's availability, might have been overlooked by the program staff. Stimulated by the assessment tool's availability, however, the program staff can add the attitudinal dimension to the program's targeted outcomes.

A second program-design dividend of properly constructed assessment tools is that they *clarify intended program outcomes* and, thereby, make possible the provision of more on-target program activities than would have been the case had such clarification not been present. To illustrate, suppose that program personnel intend to feature in their evaluation an assessment device focused on a specific stress-management skill. By becoming familiar with the composition of that assessment tool, the program staff can be sure to incorporate truly relevant practice sequences in their instructional program. Provision of appropriate instructional practice for participants need not reflect "teaching to the test" in the negative sense that instructors coach students for specific test items. Instead, providing relevant practice so that program participants attain the program's intended outcomes constitutes an efficient and effective, research-supported form of instruction.

To review, then, the measuring instruments provided in this handbook are intended to assist those who design and those who evaluate stress management programs. With respect to program evaluation, the measures will yield evidence by which to improve programs as well as determine program effectiveness. With respect to program design, the measures provide a menu of potential program options and, once having been selected, enhanced clarity regarding the nature of the outcome(s) sought.

What the Handbook Contains

There are several key ingredients in this handbook. It should, therefore, prove helpful to readers if the handbook's major sections are presented. Briefly, then, here is a description of the handbook's major components:

Introductory information. In Chapter One, an introduction to the handbook is provided. Because the handbook is intended to be used with stress management programs, the chapter concludes with a series of evaluation-related issues specific to health education programs dealing with stress management.

Program evaluation essentials. Although a number of people who use this handbook will already be familiar with the nature of program evaluation, many handbook-users will not be well versed in the conduct of program evaluations. Accordingly, in Chapter Two, an introduction is provided to the key operations involved in program evaluation. Although space limitations preclude a detailed exposition of all aspects of program evaluation, emphasis is given to the role that assessment instruments play in the gathering of information needed for defensible evaluations.

Assessment instruments. Chapter Three contains the handbook's most important components, namely, the measuring tools designed to be used in the evaluation and design of stress management programs. These measures deal with behavior, knowledge, skill, and affective outcomes. The Behavior measures focus on actual behaviors of program participants. *Knowledge* measures are concerned with participant mastery of a defined set of information. *Skill* measures deal with cognitive, that is, intellectual competencies to be mastered by program participants. Finally, *affective* measures assess participants' attitudes and values.

Each measure is introduced by a brief description of the purpose of the assessment instrument, as well as procedures for administering, scoring, and analyzing the resulting data. All measures have been provided on separate detachable pages. At the beginning of Chapter Three, an overview description of the chapter's measures is provided to facilitate the selection of measures.

Local measure appraisal. Although the measures contained in this handbook have been created with considerable care and were pilot tested in small-scale tryouts, the measures have not yet been subjected to a formal empirical appraisal of their technical adequacy. Thus, in Chapter Four, a description is provided of how such technical appraisals of the handbook's measures can be carried out.

Annotated bibliography. Because evaluators and designers of programs in stress management may wish to consult additional sources regarding program design and evaluation, an annotated bibliography is provided to facilitate the handbook-user's selection of such materials. (See Appendix C.)

Amplified content descriptors. The information eligible for inclusion in the knowledge measures is provided in the handbook's appendix as amplified content descriptors. (See Appendix A.) Additional content, that can be used for the generation of new items, is also presented. However, these descriptors are not exhaustive accounts of stress management content.

How to Use the Handbook

The particular ways in which the handbook is used will vary from setting to setting and from user to user. For instance, if a handbook-user is relatively unfamiliar with the core notions in program evaluation, then a thorough reading of Chapter Two's treatment of program evaluation essentials is warranted. In addition, further reading based on the evaluation-related references included in the annotated bibliography would also seem useful.

For handbook-users more familiar with program evaluation, primary attention will probably be focused on Chapter Three's measures. Although use of the measures will vary from situation to situation, a common four-step usage pattern is depicted in Figure 1.1.

Note, that in Step 1, the measures are used to represent a range of potential program objectives. Clearly, an expanded range of options can lead to more appropriate decisions regarding what program objectives to pursue. In Step 2, after the measures for possible program evaluation have been reviewed, one or more measures are selected for use in the evaluation of the program. In Step 3, after the program evaluation measures have been selected, the program staff studies the measures intensively to discern if there are program design implications to be drawn from the measures. In Step 4, the measures are administered using one of the evaluative data-gathering designs described in Chapter Two

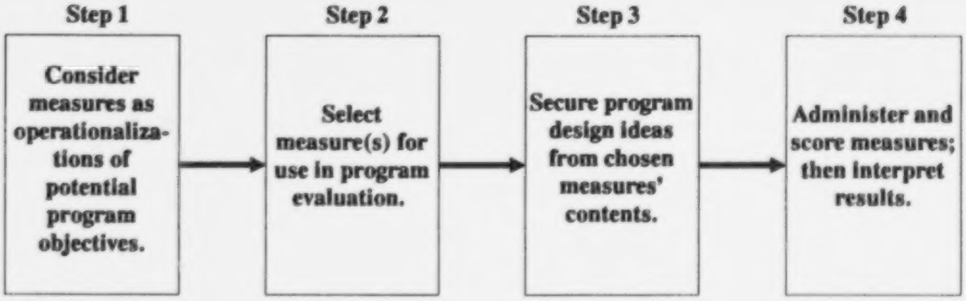

Step 1
Consider measures as operationalizations of potential program objectives.
Step 2
Select measure(s) for use in program evaluation.
Step 3
Secure program design ideas from chosen measures' contents.
Step 4
Administer and score measures; then interpret results.

Figure 1.1: A four-step usage pattern of the handbook's measures

and scored according to the scoring directions in Chapter Three. Finally, interpretations of the results are made.

It is important to remember that the handbook's measures are to be used for program evaluation, not individual decision making. Thus, if one of the handbook's affective measures was used on a pretest-posttest basis, it is the *aggregation* of scores on the measure that provides us with an indication of the program's effectiveness. The measures were not designed to yield an accurate indication of an *individual* participant's status. Thus, it would be inappropriate to attempt to determine an individual participant's attitudes on the basis of the handbook's measures. The measures are relatively brief instruments designed to be administered without great intrusiveness. When the measures' scores are viewed in the aggregate, the measures can provide data of relevance to program evaluators. The data, however, should *not* be used for determining the status of individuals.

Another point related to use of the handbook's measures concerns the potential *reactivity* of certain measures, that is, the likelihood that if the measure is used *prior* to the program, the experience of completing a measure may cause participants to react differently to the program than had the measure not been administered. Reactivity is more frequently associated with affective measures rather than cognitive measures. Thus, handbook users will need to be alert to the possibility that a given measure, if administered prior to the program, will unduly sensitize participants to an aspect of the program.

To avoid such reactive effects, program personnel may need to divide participants into two subgroups so that only a portion of the participants receive any given potentially reactive measure. Such subgroups would not be given the same reactive measure both before and after the program. Rather, participants should be administered only post-program measures that they had *not* been given prior to the program. Indeed, two potentially reactive measures may be administered simultaneously under the conditions represented in Figure 1.2, where it can be seen that the pre-program performance of certain participants (one-half, for example) serves as a comparison for the post-program performance of other participants. Although a variety of data-gathering designs will be described in Chapter Two, the evaluator should employ care in using the handbook's measures so that they permit reasonable inferences regarding program effectiveness. Potential reactivity of measures should be examined when considering such designs.

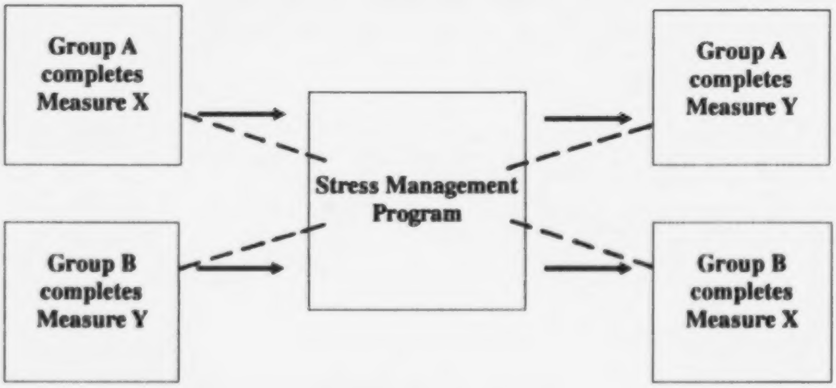

Group A completes Measure X
Group B completes Measure Y
Stress Management Program
Group A completes Measure Y
Group B completes Measure X

Figure 1.2: Using the handbook's measures to avoid reactive effects (Appropriate Comparisons = — — —)

Technical Quality of the Handbook's Measures

The measuring instruments to be found in Chapter Three were carefully constructed by an experienced test-development agency according to the guidance of prominent experts in the field of stress management. All of Chapter Three's assessment devices were subjected to small-scale tryouts, revised on the basis of those tryouts, and reviewed by stress management specialists.

At the outset of this handbook-development project, it had been anticipated that all of the handbook's measuring instruments would be subjected to large-scale field-tests so that substantial empirical evidence regarding the technical quality of the measures could be made available to handbook users. Unfortunately, that phase of the project could not be completed.

Thus, handbook users should be cautioned that, although the handbook's measures were developed with great care, there is currently no evidence available by which to ascertain the technical quality of the measures. Thus, handbook users must exercise caution in the use of Chapter Three's assessment instruments. In Chapter Four, as indicated earlier, a description is presented of the ways which users of the handbook's measures, if they wish to do so, can carry out local studies regarding the technical quality of the measures that they find most suitable for their use.

Specific Stress Management Concerns

This handbook is intended to help those who design and evaluate stress management programs. It is *not* intended to transmit content dealing specifically with stress or its management. For those readers who wish to acquire information about stress and stress management, the list of references located at the end of this chapter contains introductory and advanced resources dealing with stress *per se*. Nonetheless, the field of stress management is, in a very real sense, so distinctive that some attention to the substance of stress management must precede a consideration of approaches to program evaluation. As individuals familiar with stress management recognize, the distinctiveness of the field impinges in a direct manner on the way in which stress management programs must be evaluated.

Definitional problems. What is stress? That question, so disarmingly simple, has proved thoroughly vexing to the numerous individuals who have devoted themselves during recent decades to the study of stress (Fischer, 1986). To illustrate the definitional difficulties associated with stress, a conference dealing with the nature of stress was sponsored by the National Institute of Mental Health in May 1985. Prominent stress researchers from the U.S. and abroad were assembled. The chief mission of the conference was to hammer out a generally acceptable definition of stress. At the close of the two-day conference, a number of participants reported that the definitional picture was essentially no more clear than it had been prior to the session.

Such definitional disagreements serve to exemplify a series of pervasive controversies regarding many aspects of stress and stress management. For example, there are two clearly divergent schools of thought regarding what causes a stressful reaction in individuals. One group maintains that a stressor is dominantly defined as a stimulus external to the individual, such as the death of a loved one (Dohrenwend, Dohrenwend, Dodson, & Shrout, 1984). An opposing camp holds that the external stimulus is far less important than the manner in which the individual perceives and cognitively appraises that stimulus. For example, a raft-ride down a series of whitewater river rapids may be terrifying and stress-inducing to one individual, yet exciting and gratifying to another.

The *stimulus-focused conception* of a stressor is well represented in the attention to assessment scales that focus on significant life events (e.g., Holmes & Rahe, 1967; Dohrenwend & Dohrenwend, 1974). Proponents of a stimulus-focused view of stress maintain that, although there are obvious differences in the way that individuals react to major life events, the dominant factor in those reactions is associated with the stimulus itself, not how the stimulus is perceived. Thus, divorce, the death of a spouse, or being fired from one's job are regarded as such powerful events that they produce, without exception, stressful responses in people.

On the other hand, those who emphasize the role of cognitive appraisal in how one deals with potential stressors (e.g., Lazarus & Folkman, 1984) believe that the way in which we perceive external stimuli is most influential in how we react to those stimuli. In essence, proponents of this view argue for a *perception-focused conception* of stressors. To illustrate, the death of a spouse who has been suffering from an incurable disease might be perceived by the surviving spouse not as a tragic loss but as a blessing. Retirement, generally regarded as a stress-inducing life event, might be perceived by some as overdue relief from an aversive job.

Clearly, there are middle positions taken on this pivotal issue by many stress specialists. Nonetheless, the disagreement between those who advocate a stimulus-focused versus a perception-focused conception of stressors illustrates but one of a sizeable number of disagreements in the emerging field of stress management. These disagreements often create genuine difficulties for those who wish to evaluate the effectiveness of stress management programs.

From the perspective of those who attempt to measure the effects of a stress management program, the perception-focused view of stressors poses a number of problems that must be dealt with directly. If one subscribes to such a view, for example, then any self-report measures used must allow individuals to tell us how they personally perceive potential stressors and how they react to those that are perceived to be actual stressors. If stressors exist chiefly in the eyes of the beholder, then one must analyze potential stressors through the beholder's eyes.

On the other hand, if one subscribes to the overriding importance of external stimuli in the creation of stress, for example, by focusing on significant life events, what sort of role should stress management programs have in altering the life events that an individual encounters? No stress management program, for example, can claim that it will actually decrease the number of negative life events that its participants will experience. People do, after all, lose jobs and suffer serious illness. Thus, it would seem that when evaluating stress management programs based on a stimulus-focused conception of stressors, evaluators must attend chiefly to the ways in which participants *cope* with externally created stressors that, in many instances, they will be unable to alter.

Because of disagreement in the field regarding the nature of a stressor, in this volume a somewhat middle position will be taken. More specifically, the term *stressor* will be used to describe *a stimulus likely to produce stress or a physical reaction*. Stress is defined as a negative affective response to stressors such as feelings of anxiety. A physical reaction is a physiologic response such as an increased heart rate. Note that the definition of a stressor hinges on those stimuli *likely* to result in stress or a physical reaction. Therefore, a stimulus might, because of its likelihood of promoting stress or a physical reaction, be regarded a stressor. Even with such stimuli, however, it is recognized that for a given individual the stimulus in question may not function as an actual stressor.

Stress management programs to be evaluated. There are numerous sorts of stress management programs currently being offered. Some of these programs are highly particularized, dealing with the management of stress arising from specific categories of stressors. Illustrative of such programs are those provided for participants who are dealing with (1) terminal illness of a loved one, (2) their own terminal illness, (3) divorce, or (4) the aftermath of rape.

In contrast, there are general stress management programs offered which, in a period of several weeks, attempt to provide participants with a series of general techniques to deal with routine types of stressors. Often these are corporate programs concerned with job-related stress (Gherman, 1981). Although the theoretical orientations of such general-purpose programs vary considerably, they are all designed to promote participants' stress management skills.

Because of the substantial particularization of special-focus stress management programs, and the resultant difficulties of creating appropriately specific assessment devices, the measures in this handbook were developed with general-purpose stress management programs in mind. Those who are attempting to evaluate more specialized stress management programs may, of course, find that the measures in the handbook suit some of their assessment needs. If more particularized measures are needed, perhaps such measures can be developed by program evaluators along the lines of the assessment devices contained in the handbook. In essence, because a "serve-the-greatest-demand " strategy was adopted in the development of the handbook's measures, evaluators of special-focus stress management programs may need to modify the current handbook's measures.

Proximal versus distal outcomes. Most stress management programs are relatively brief endeavors. Although the programs may extend over a period of several months, the actual number of hours constituting a stress management program is often extremely small. It is important, therefore, for designers and evaluators of stress management programs to focus on the sorts of realistic outcomes apt to be achieved by the stress management program under consideration.

One distinction of utility in this regard is the difference between *proximal* and *distal* program outcomes. Proximal outcomes are those post-program effects apt to be directly promoted as an immediate consequence of the program. Thus, if a six-week program on stress-management emphasizes the use of certain coping techniques, the evaluation of that program might assess participants' *proximal* (1) knowledge of, (2) attitudes toward, or (3) actual use of the coping techniques within a period of several weeks following the program's conclusion.

More distal outcomes, such as participants' subsequent ability to deal with life's stressors, while doubtlessly of considerable interest to program personnel, may represent aspirations too ambitious for the typical stress management program. Only stress management programs of substantial intensity and duration could realistically be expected to promote long-range, distal outcomes that are detectable.

Stress management in evolution. More so than most fields in health education and health promotion, the stress management field is in its early stages. With emerging specializations, it is often tempting to move as rapidly as possible toward agreements so that common understandings may move the field forward more rapidly.

Yet, as several observers (e.g., Janis, I.L., 1986) have noted, the dangers of prematurely foreclosing the debate over key stress-related issues may do the field more harm than good. It appears, then, that even in the absence of substantial agreement over many issues, those involved in stress management evaluation may still make reasonable progress.

Just as importantly, even with their less than abundant store of empirical knowledge, stress management specialists can devise programs that will prove genuinely useful to the participants served. Such programs can be beneficial *if* they are effective. How to use this handbook in evaluating the effectiveness of such programs is the focus of the next chapter.

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CHAPTER TWO

Essentials of Program Evaluation for Health Educators

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Education programs are intended to help people. Public school programs, for example, are intended to help youngsters acquire the skills and knowledge that they will need as adults. Similarly, health education programs are intended to promote participants' adoption of beneficial health-related behaviors. Yet, even though an education program might have been well intentioned, how do we know that the goals of the program were realized? Moreover, if a program is not meeting its goals, how can the program be made more effective?

Such questions constitute the core of program evaluation. In essence, evaluators want to discover whether a program has worked effectively and, if not, how it can be made more effective. When evaluation is used to improve programs, it can make a significant contribution to the well-being of program participants and, potentially, to the community at large.

In this chapter, the nature of program evaluation will be considered as it relates to health education programs. The following topics will be discussed:

- Focusing the Evaluation
- Rights of Participants
- Selecting Appropriate Measures
- When to Administer Measures
- Data-Gathering Design Options
- Sampling Considerations for Data Collection
- Data Analysis
- Reporting Results

The purpose of this chapter is not to promote a particular evaluation model for health education programs. Rather, the chapter deals with considerations central to any evaluation effort. It is hoped that evaluators* of stress management programs will be able to apply the chapter's contents to their endeavors.

Focusing the Evaluation

The results of a program evaluation can be used to improve decisions about programs. Anyone setting out to evaluate a health education program, therefore, should focus the evaluation on the *decisions* that are likely to be made about the program, either while the program is being implemented or when it is concluded. In other words, if evaluators know what decisions are apt to be faced by those who will use the evaluation's results, then information bearing on those decisions should, if possible, be collected during the evaluation. To determine what these decisions are, an evaluator needs to have a clear understanding of the purpose of the program, the specifics of the program, and the individuals or groups who may use the evaluation's results. Focusing the evaluation involves considerations such as (a) the nature and role in the evaluation of program objectives, (b) the summative and formative functions of evaluation, (c) the cost of the program, (d) the extent to which observed changes in participants will also be attributed to the program, and (e) the extent to which program effects will be generalizable to other situations. Each of these considerations is discussed below.

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* Sometimes a program evaluation will be conducted by an individual not affiliated with the program itself – an individual formally designated as a program evaluator. More frequently, however, an evaluation will be carried out by the personnel who are actually operating the program. Whenever the term "evaluator" is used in this handbook, it will refer both to the evaluator-specialist and to the program staff member serving as evaluator.

Objectives and evaluation. Health education programs are designed to bring about worthwhile effects. Most health education programs, therefore, are organized around some form of program objectives that focus on such intended effects. In general, the more clearly these objectives are stated, the more useful they will be in carrying out an evaluation.

One way of conducting an evaluation is to determine the extent to which a program's objectives have been achieved. Program designers too frequently describe their objectives in such ambiguous, general ways, however, that it is impossible to tell whether such loosely defined objectives have been attained. It is for this reason that it can be beneficial for evaluators to work with program personnel, prior to program implementation, to create program objectives that clearly describe desired post-program participant behaviors.

Another potential pitfall when creating program objectives is the tendency to delineate a set of hyper-detailed objectives. Specificity does not automatically yield utility. Instead, decision makers can become overwhelmed by long lists of low-level, albeit behaviorally stated, objectives. For example, a program objective that participants be able to identify noise as a stressor is going to lead down a path toward numerous small-scope objectives. Recent thinking regarding instructional objectives suggests that program objectives, *while still measurable,* should focus on larger, more significant types of participant post-program behaviors. A more significant stress-related objective, for example, might be that participants be able to identify stressors in commonly encountered life situations in which stressors are apt to be present. Today's health education programs, rather than being organized around 30 miniscule (and, therefore, potentially trivial) objectives, might better be focused on a half-dozen more general, but still measurable, program objectives.

Most evaluators agree, however, that there is substantially more to program evaluation than merely determining whether a program's objectives have been achieved. For example, there may be effects of the program that were not anticipated in the program's stated objectives. Evaluators need to be attentive not only to the effects of a program that were anticipated but also to any unforeseen program effects.

Summative and formative functions. Summative evaluation addresses the question of whether a program, in its complete and final form, is effective. The decisions associated with the summative evaluation are essentially go/no-go decisions, such as whether to continue a health education program or, perhaps, whether to disseminate the program more widely.

Formative evaluation addresses questions associated with improving a program that is "under-development," that is, still modifiable. The decisions associated with formative evaluation focus on ways to improve particular parts of the program. Formative evaluation is an ongoing endeavor conducted as the program is designed, installed, and maintained. Whereas summative evaluation's mission is to provide a final judgment about a program's overall merit, formative evaluation's mission is to bolster a program's quality on a continuing basis. The effective formative evaluator functions less as an external judge and more as a collaborating member of the program team. The formative evaluator's task is to monitor the program so that it can be improved.

Almost all programs are, at least to some degree, modifiable. Hence, only in rare cases do evaluators appraise a health education program in its complete and final form. One such instance might involve a materials-based stress management program. For example, if the program were found to be effective via a summative evaluation, a commercial publisher would distribute the program's materials nationally. In most cases, however, health education programs can be modified and improved. Thus, a formative, improvement-oriented evaluation can be carried out for most health education programs.

Cost analysis considerations. Program evaluators are often so concerned about detecting the effects of programs that they fail to consider the *costs* of those effects. Yet decision-makers need information regarding not only the effects of a program, but also the resources required to achieve those results. For this reason, program evaluators should carefully isolate and communicate the relative costs of programs. For example, information should be collected that can show how much Program A costs to produce a given result compared to the cost of Program B to produce a comparable result. Judgments about a program's impact without considerations regarding its costs are potentially superficial. In recent years there has been much attention to cost-analysis strategies. Although consideration of those procedures is beyond the scope of this handbook, serious evaluators of health education programs would do well to delve more deeply into cost-analysis procedures.*

Attributing observed changes to the program. Characteristically, an evaluation seeks to determine whether individuals have changed as a result of their participation in a program. The key issue is whether pre-program to post-program changes in the status of participants are attributable to the program itself or to other extraneous factors. Examples of extraneous factors are participants' maturation, their familiarity with the measures used in the evaluation, or their reactions to non-program events such as a health-related, mass media campaign. This issue revolves around the evaluator's ability to properly infer that the program itself caused any observed changes in participants. Technically, the degree to which evaluators can validly infer that a program caused a set of observed changes is referred to as the *internal validity* of the evaluation study. Ideally, an evaluation's data-gathering design should help to rule out explanations other than the program itself for observed changes. (Data-gathering design options are discussed later in this chapter.) If evaluators are unable to attribute observed changes to the program, they will have difficulty in determining program quality.

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* For additional information about cost-analysis approaches, see Annotated Bibliography Nos. 1, 28, and 29.

Generalizing program effects. A related issue is the extent to which the findings of an evaluation study can be generalized to other situations. The issue here is whether similar results would be expected, for example, with a different group of participants, slight variations in the program, or changes in program personnel. The degree to which the results of an evaluation study can be generalized elsewhere is technically described as the study's *external validity.*

If evaluations are generalizable, they can provide useful information to (a) program personnel regarding the range of conditions under which the program is effective and (b) other health educators who may wish to adopt an already "evaluated" health education program. A stress-management program that works well in one setting may provide helpful guidelines for those wishing to operate other stress programs. Typically, however, a local evaluation should be conducted once the program has been adopted.

It is important to distinguish between a program's causative power and the program's generalizability, because different information may be required to establish each factor. Procedures that limit the number of extraneous variables in the evaluation (e.g., including only males) increase internal validity but, at the same time, limit generalizability. Evaluators must try to balance the problems associated with threats to internal and external validity by selecting a data-gathering design that best addresses the information needs of program personnel as well as of those external to the program who may be interested in adopting the program elsewhere.

Rights of Participants

Health education programs are designed to improve individuals' health and well-being. When such programs are evaluated, therefore, the focus is typically on a program's impact on human beings. Some evaluators, however, become so caught up with the importance of appraising a health education program that they overlook the rights of the individuals who take part in the evaluation. Two important rights are those of informed consent and confidentiality.

Informed consent. Evaluators, just as researchers, should be guided by a profound respect for human dignity. Therefore, they should not engage in evaluative activities that in any way demean participants. Prominent among the considerations that should guide evaluators is the concept of *informed consent.* Informed consent requires that an evaluator secure, in advance of the study, permission from the participants in an investigation to gather data from them. This consent is obtained *after* the potential participants have learned about the nature of the investigation and what their role would be, because that information may influence their decision to participate. Informed consent eliminates the possibility of making individuals unknowingly serve as subjects in an evaluation.

For additional information about internal and external validity issues, see Annotated Bibiliography Nos. 8, 11, 12, and 15.

Two different approaches to securing informed consent have been employed by program evaluators. The first of these, *active informed consent,* obliges an evaluator to obtain, in writing, a statement from each participant indicating that the individual is willing to participate in the evaluation. The significant aspects of the evaluation must be described in the written permission form so that potential participants are fully informed when they give their consent.

An evaluator using the second approach, *passive informed consent*, supplies descriptions of the evaluation's essentials to all program participants and provides them an opportunity to register, in writing, their unwillingness to participate in the study. In other words, when a passive informed consent approach is used, participants return the forms supplied to them only if they are *not* willing to participate in the evaluation study. Of the two approaches, the active informed consent strategy typically results in fewer participants because those individuals who do not provide consent forms must be excluded from the study. Because evaluators who conduct studies involving school-age children are obliged to secure informed consent from underage participants' parents or guardians, a passive informed consent strategy is often adopted due to the difficulty of securing active informed consent from individuals who are not participating in the program themselves.

Procedures for developing forms for both of these approaches to securing informed consent are described in Appendix B. The actual forms to be used in an evaluation would need to be created so that they are specifically relevant to the program involved.

Confidentiality. Another consideration when dealing with human subjects is the *confidentiality* of all information gathered during an evaluation. Because the evaluator is not concerned with an appraisal of individual participants but, rather, with gauging the effectiveness of a health education program, ensuring participant confidentiality usually poses no problem. Evaluators must, however, devise protective safeguards, such as anonymous completion of forms and careful handling of data, to ensure both the appearance and reality of confidentiality.*

Selecting Appropriate Measures

Although there are various approaches to program evaluation, almost all share one common feature, namely, the systematic gathering of evidence regarding a program's effects. To secure evidence of program effects, evaluators usually employ measurement instruments. Some instruments, however, are far more suitable for assessing a program's effects than others.

Criterion-referenced measurement. For more than two decades, educational measurement specialists have directed increasing attention toward an emerging form of assessment known as criterion-referenced measurement. In comparison to norm-referenced measurement, which attempts to ascertain an examinee's status in relation to the status of other examinees, criterion-referenced measurement attempts to ascertain an examinee's status in relation to a criterion-referenced measurement attempts to ascertain an examinee's status in relation to a clearly defined set of behaviors. The essence of a criterion-referenced instrument is the clarity with which its accompanying descriptive materials explain what is being measured. Because norm-referenced instruments emphasize *relative* comparisons among examinees, they often do not provide a clear description of exactly what it is they are assessing. In contrast, criterion-referenced instruments are *absolute* measures, designed to determine exactly what it is that examinees can or cannot do, without reference to the performance of other examinees. Thus, criterion-referenced tests provide a clearer description of what they are measuring.

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* For additional information about the rights of human subjects and the ethics of evaluation, see Annotated Bibliobraphy Nos. 2, 26, and 38.

It is the clarity regarding what is being assessed that renders criterion-referenced measures ideal for the evaluation of health education programs. Consistent with the mission of providing useful information for decision-makers, criterion-referenced instruments describe the precise nature of what is being measured. Hence, when criterion-referenced measures are used to gather evidence in program evaluations, decision makers can accurately interpret the evidence being supplied.*

Attributes of well-constructed measures. All instruments, whether norm-referenced or criterion-referenced, should measure what they are measuring with consistency. The consistency with which an instrument measures is known as its *reliability.*** There are several different indices that can be computed to reflect an instrument's reliability. The kind of reliability data needed to appraise a measure for possible use in an evaluation study should be consonant with the way the measure will be used in that study. If a measure is to be used on a test-retest basis, for example, then information about that type of reliability is germane. If alternate forms of a test are to be used, for instance, in a pretest-posttest situation, then evidence should be available regarding alternate-forms reliability so that the evaluator can determine whether or not the two different forms are sufficiently equivalent.

It should be noted that when a health education program is being evaluated, attention should be directed to the impact of the program on a *group* of participants. Thus, the consistency to be sought when measurement instruments are used for program evaluation is consistency for a group of participants' scores. When dealing with individual participants, the measures must yield *individual* or diagnostic consistency.

A second critical attribute of a properly constructed measure is that it yields scores from which valid inferences can be drawn. An instrument is often said to be valid "if it measures what it purports to measure." Such a statement, however, is technically in error. Tests themselves are never valid or invalid. Rather, it is the *interpretations* made from test scores that are valid or invalid.

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* For additional information about the nature and development of criterion-referenced measures, see Annotated Bibliography Nos. 6, 24, and 35.

** For information about determining the reliability of measuring instruments, see Annotated Bibliography Nos. 3, 18, 19, 23, 27, and 35.

There are several types of validity evidence, each yielding somewhat different but conceptually related indications about our ability to make valid inferences from a measure. Evidence of validity is, in the opinion of most measurement specialists, the most important consideration in judging the adequacy of measurement instruments. Program evaluators should make sure they are knowledgeable about methods of securing validity evidence.*

A final consideration in appraising the quality of measures used for program evaluation deals with the presence of *bias* in the assessment devices. During the past decade, measurement specialists have become particularly aware that many educational assessment devices contain items biased against particular subgroups, such as ethnic minorities or women. An example of a biased test item would be a knowledge question that, because of peculiarities in its content or wording, is more difficult for women to understand and answer correctly than it is for men, even though the men and women have an equivalent amount of knowledge regarding the particular concept being tested.

Another type of bias that can adversely influence examinee performance arises when test items are offensive to particular groups of individuals. For example, if a test item includes content that is seen to be derisive to members of particular ethnic groups, then examinees from those groups are not apt to perform at their best on the item. Their warranted agitation over the offensive content is likely to interfere with their responses to that item as well as to subsequent items.

There are now available both judgmental and empirical techniques for detecting the presence of biased items. These approaches should be used to identify, then eradicate, bias in a measure's items.**

Finally, it is important to note that any given instrument may not possess all of the qualities discussed above. Often evaluators must choose among measures that embody some but not all of the elements described here, that is, (a) descriptive clarity, (b) reliability, (c) validity, and (d) absence of bias. Another important point is that merely because a measure is *labeled* in a particular way, for example, as criterion-referenced or as non-biased, that does not automatically indicate that it is of sufficient quality to be used in evaluating a health education program. Scrutiny of all aspects of the measure's quality is requisite.

When to Administer Measures

Decisions regarding when to administer measures depend on the data-gathering design selected. Conceivably, there are four temporal periods during which it may be useful to obtain evaluative information about participants of health education programs. There may also be reasons for repeated measurement during some of these periods. These periods are depicted in Figure 2.1.

Pretests. Often it is useful to have information about participants prior to their starting the program. Such information, typically referred to as pretest data, may be used to identify

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* For information about obtaining validity evidence regarding measuring instruments, see Annotated Bibliography Nos. 3, 18, 19, 23, 27, and 35.

** For information about methods for avoiding test bias, see Annotated Bibliography Nos. 7 and 33.

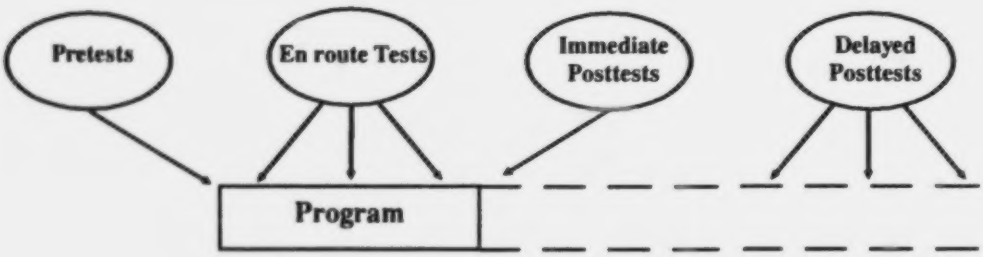

Figure 2.1: Possible measurement times in program evaluation studies

participant needs so that instruction can be targeted directly at those areas. In addition, pretest data can be compared with data collected at the end of a program. Such a comparison can provide a measure of program impact.

En route tests. Measures can also be administered during a program to secure current readings on the status of participants. For purposes of formative evaluation, en route data can be used to redirect resources during the program by providing program personnel with ongoing status-checks on participants' progress. Thus, en route tests may be even more useful than tests administered at the end of the program, because en route measurement provides information while there is still time for program personnel to act on it. This type of assessment is most appropriate for programs of long duration (e.g., several months or more).

Posttests. Measures are commonly administered following a program. The data from posttests can be compared with pretest data to examine changes in participants from the beginning to the end of the program. Participants' posttest performance can also be contrasted with posttest scores from participants in other programs. In addition, posttest data provide an indication of the absolute status of participants on the variables of interest at the completion of the program.

Delayed posttests. Data from delayed or follow-up posttests are often as important or more important than immediate posttest data in evaluating a health education program. Delayed posttest data might be secured, for example, several months after a program's conclusion. Far too frequently data collection efforts are limited to those times when measurement is most convenient. Ultimately, however, health educators should be interested in effecting long-term, rather than short-term, behavioral, affective, and cognitive changes. It is nearly impossible to infer such long-term changes on the basis of information gathered solely at the end of a program. As indicated in Chapter One, many of the desired changes in participants of stress management programs represent long-term rather than short-term objectives. For most health education programs, some follow-up measurement, perhaps repeated, is usually warranted.

Clearly, it is not sensible to administer all measures at all time periods. Evaluators, in collaboration with program personnel and other interested parties, need to select a measurement scheme that focuses on the most appropriate times for gathering data. Just as it is desirable to avoid administering an excessive number of different measures, it is also necessary to avoid an excessive number of administrations. It may be useful to administer certain measures (for example, a brief behavioral self-report measure) on a continuing basis; other more time-consuming measures might be administered less frequently. Decisions about when to administer measures should be guided by common sense, attentiveness to participants' feelings, the efficient use of resources, and any conventional expectations, such as when a delayed posttest is ordinarily given.

Data-Gathering Design Options

It is sometimes thought that program evaluations must include complicated and elaborate data-gathering designs in order to yield decisive and compelling data. This is simply not the case. Program personnel and evaluators should try to conduct evaluation studies and gather data in such a way that the ambiguity of results can be reduced to a minimum. That is, evaluations must attempt to determine whether a program works and what makes it work or what prevents it from working. Data-gathering designs serve as the means to this end by setting forth the procedures to be used in exploring the nature and impact of a program.

The data-gathering design that an evaluator chooses for an evaluation will determine the inferences the evaluator can make about a program's overall impact on participants and the effectiveness of its various components. To select the best designs for evaluation studies, evaluators must have a broad knowledge of the available data-gathering design alternatives and the strengths and weaknesses associated with each. Evaluators must also work closely with program staff to determine what decisions are at issue regarding the program. No evaluation study will be perfect; every evaluation leaves some questions unanswered. Evaluators need to be clear regarding what they have learned about a program and the degree of certainty associated with their findings, and they must convey this information to appropriate audiences.

An important concept related to data-gathering designs is randomization. Randomized selection and assignment are described below, followed by brief descriptions of the most common data-gathering designs available for evaluators of health education programs.

Randomization. One technique that can prove useful to evaluators is *randomization,* which involves the selection or assignment of participants in a nonsystematic manner, such as by using a table of random numbers (found in most statistics texts). A prominent application of randomization in program evaluation is *randomized selection* of subjects. This sort of randomization is particularly important when the evaluator wishes to generalize from the results of a study to a larger population. When the participants taking part in the program to be evaluated have been selected at random from a larger population of potential participants, then the evaluator can be reasonably confident that those involved in the evaluation will be representative of that larger population. There is less likelihood that the participants being studied in the evaluation are atypical, which would make it inappropriate to generalize the evaluation's results to the population at large. Randomized selection of subjects may also be useful when there are more applicants than vacancies for a program.

Another use of randomization is to assign participants to different "treatments" or programs. If an evaluator wishes to compare the effects of different treatments, then the

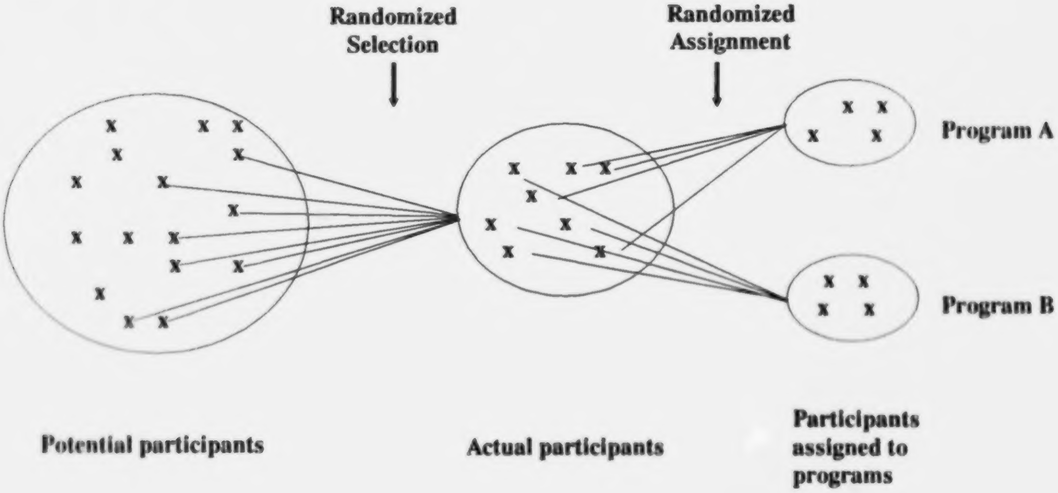

Figure 2.2: Randomized selection of participants from pool of potential participants and randomized assignment of participants to programs

evaluator wants the participants in each treatment to be as equivalent as possible. To this end, evaluators can employ a *randomized assignment* procedure whereby individuals are randomly placed in the treatments or programs to be compared.

The two procedures of randomized selection and randomized assignment are illustrated in Figure 2.2. Note that participants are randomly selected from the pool of potential participants, and then randomly assigned to either Program A or Program B.

The use of randomization techniques does not necessarily create equivalent groups. For example, if an evaluator were to randomly assign 50 potential participants in a company's stress management program to treatment and no-treatment groups, it is still possible that one of the groups would contain individuals who, when pretested, were significantly different in some important aspect from those in the other group. In such instances, evaluators must rely on statistical procedures in an effort to compensate for such disparities. In most cases, however, use of randomization will create groups of sufficient equivalence that such statistical adjustments are not needed.

In practice, program personnel often may not have the luxury of constituting groups via randomized selection or assignment. For example, local school board policies might require that *all* youngsters be provided with any program regarded as potentially beneficial. When randomization is not used, it is especially important to collect and examine descriptive data about participants to determine where pre-program group differences occur and to consider the ways in which such differences may influence post-program data. Even if randomization is impossible, attempts to constitute comparison groups with individuals as equivalent as possible can help minimize the influence of preexisting participant differences.

Seven different data-gathering designs of potential utility for evaluators of health education programs will be presented below. Each data-gathering design will be described and depicted schematically. Some of the major factors involved in the selection of data gathering designs will be addressed.

The case-study design. Consider a six-month health education program aimed at modifying participants' knowledge about the effects of stress on health. If participants' knowledge were measured only at the close of the program, we could describe the data-gathering approach as a *case-study design* and represent it schematically as shown in Figure 2.3.

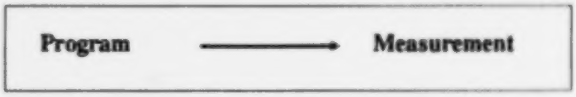

Figure 2.3: Case-Study Design

If this were the design employed in an evaluation, what could an evaluator tell about the program's impact on participants' knowledge? How confident would an evaluator be that participants' knowledge about the effects of stress was attributable to the program?

It would be difficult, with confidence, to attribute any effects to the health education program. The program, indeed, may have been totally ineffectual. In fact, participants' post-program knowledge might be identical to their knowledge before the program. The participants could be demonstrating knowledge that they brought to the program, not that they acquired during the program. Because we have no measure of participant knowledge prior to the program, we can not distinguish between preexisting knowledge and knowledge acquired as a result of the program. Hence, with the case-study design, it may be impossible to determine whether the program had any impact on participants.

Even though attributions of causality are often unwarranted, it may be possible to secure useful program evaluation data with such a data-gathering design. Suppose, for example, that a health education program is promoting a body of knowledge so advanced that few, if any, individuals would be familiar with it. In such a setting, one could assume that participants' post-program knowledge is attributable to the program's impact because participants would almost certainly not have acquired the knowledge without the program. It might not be worth the resources necessary to implement a data-gathering design capable of conclusively demonstrating that participants began the program unfamiliar with the knowledge being promoted.

For additional information about randomization, see Annotated Bibliography Nos. 8 and 25.

This example illustrates an important data-gathering consideration, namely, that the chief mission of data-gathering designs is to *rule out plausible rival explanations,* that is, explanations other than the program's impact, that might account for the post-program status of participants. If there is reason to believe that participants' pre-program status may account for their post-program status, then a data-gathering design should be selected that permits the evaluator to rule out this rival explanation.

The one-group pretest-posttest design. Now suppose that, to avoid the major shortcoming of the case-study design, an evaluator measures participants' behavior both before and after a health education program. This data-gathering approach can be described as a *one-group pretest-posttest design* and can be represented as shown in Figure 2.4.

Measurement → **Program** → **Measurement**

Figure 2.4: One-Group Pretest-Posttest Design

Assume an evaluator uses the one-group pretest-posttest design and that the data reveal a substantial shift toward more desirable behaviors between the initial and the final measurement. Can this change in behaviors be ascribed to the program? Unfortunately, the evaluator cannot be sure. There are many other factors, totally unrelated to the program, that may have influenced participants' behaviors. For instance, if a stress management program emphasized the relationship between stress and depression, and at the same time a series of stress-related suicides received attention in the national news, such an event may have influenced participants' views regarding stress and suicide. Evaluators of programs that serve children must also consider the possible effects of maturation during the time the program is offered. Participants' increased maturity may cause pre-program to post-program shifts in behaviors. The program itself may have contributed nothing to the measured shift of behaviors. Such extraneous factors decrease the evaluator's ability to draw defensible conclusions about the program's impact.

As was true with the case-study design, however, if there are no plausible rival explanations for the posttest results, the one-group pretest-posttest design can be suitable for the task at hand. In fact, this simple yet serviceable design is often used in formative evaluation.

The one-group pretest-posttest design requires measurement before as well as after a program. This points to a commonly accepted but often overlooked principle of effective program evaluation. Evaluation is most effective when it is initiated at the beginning of a program. If evaluators are not called in until the end of a program, they may be hampered in their efforts to design a credible program evaluation.

The nonequivalent control/comparison group design. Program evaluators can eliminate some of the more common rival explanations for changes in participants' behaviors by using data-gathering designs in which either comparison or control groups are employed. The use of a control group (untreated individuals) or a comparison group (individuals receiving a different program) requires two groups that are assumed to be relatively similar (before the program) on all related variables. When using these designs, the evaluator should attempt to secure two groups that are as similar as possible. Because the two groups are not randomly assigned to the two conditions, however, they cannot be assumed to be *equivalent*, hence the design's designation as a "nonequivalent" control or comparison group design.

In the control-group version of this design, only one of the groups is given the program to be evaluated; the other group is left untreated. This data-gathering design, known as the *nonequivalent control group design,* is illustrated in Figure 2.5.

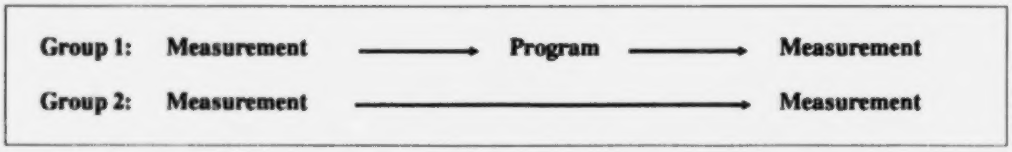
Group 1: Measurement → Program → Measurement
Group 2: Measurement → Measurement

Figure 2.5: Nonequivalent Control Group Design

In this design, a control group (Group 2) is assessed before and after the program, but it never receives the program itself. Assuming that the groups were similar before the program, if the program participants' behaviors change while the behaviors of those in the control group remain the same, the evaluator can be reasonably confident that the program caused the change.

The use of an *untreated* control group may strike some health educators as a particularly unsavory data-gathering ploy. After all, health educators design their programs to benefit participants. To withhold such programs from individuals, even for the important purpose of evaluating the program's effectiveness, seems downright reprehensible. Yet, the individuals from whom the program is withheld, that is, the members of the control group, can be given the program *subsequently,* as soon as the evaluation study has been concluded. Also, in some situations there are more program applicants than can be accommodated, and, therefore, some prospective participants must be denied access to this program under any circumstances. Those who are not admitted to the program could be used as a control group, and admitted to the program the next time it is offered.

A variation of the nonequivalent control group design involves the use of a comparison group, that is, a group receiving a different program or a different treatment. Program evaluators frequently find themselves studying the quality of two or more competing programs. Thus, the evaluator focuses on the relative virtues of two or more different programs rather than on a contrast between a single program and an untreated control group. A schematic depiction of a *nonequivalent comparison group design,* in this instance contrasting two different programs, is presented in Figure 2.6. As indicated above, more than two groups can be employed when using a nonequivalent comparison group design. An evaluator using this design can be fairly certain that, if the groups were similar before the program, any differences in post-program behaviors are due to the differential impact of the two programs.

Group 1: **Measurement** → **Program A** → **Measurement**

Group 2: **Measurement** → **Program B** → **Measurement**

Figure 2.6: Nonequivalent Comparison Group Design

There are, however, potential problems with the nonequivalent control/comparison group designs. It may be that the initial measurement was *reactive*. A reactive measurement is one that, by itself or in combination with the program, influences participants' behavior. Attitude inventories and self-report questionnaires about behavioral practices are notoriously reactive. For example, a questionnaire administered before the program might alert participants to the importance of a desired behavior. This would heighten their attentiveness when the program dealt with content related to that behavior and, as a consequence, influence their performance on the second measurement.

Moreover, measurement is expensive. Measuring the status of control groups requires valuable evaluation resources. Time and money can often be better spent studying the program being evaluated rather than studying a no-treatment control group of little intrinsic interest. Health educators should not ritualistically employ control groups in their designs if the questions at issue can be answered without the use of untreated groups.

The pretest-posttest control/comparison group design. There are two data-gathering designs that are of particular value to program evaluators if randomized assignment is possible. The first of these is the *pretest-posttest control group design*, illustrated in Figure 2.7.

Randomized Assignment

Group 1: **Measurement** → **Program** → **Measurement**

Group 2: **Measurement** → **Measurement**

Figure 2.7: Pretest-Posttest Control Group Design

The difference between this design and the previously considered nonequivalent control group design is, of course, the randomized assignment of subjects to the two groups. This feature of the design is a particularly important one, because creation of two or more groups using randomized assignment is an effective way of promoting equivalence between the groups, especially if the number of subjects in each group is large (say, 30 or more). Equivalence of groups at the beginning of the program strengthens the inference that any differences at the conclusion of the program are due to program impact.

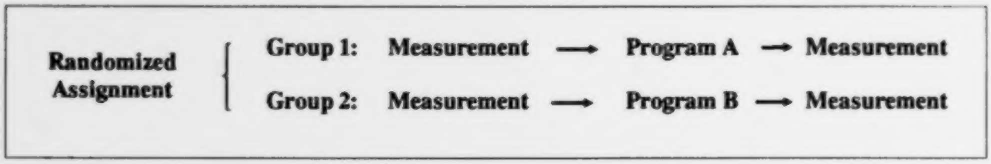

Figure 2.8: Pretest-Posttest Comparison Group Design

By using comparison groups, that is, two or more program groups, instead of an untreated control group, the evaluator would be using a *pretest-posttest comparison group design*, shown in Figure 2.8.

Because pretests are used in both of these designs, the possibility of reactive preprogram measures is still present. For situations in which reactivity is of great concern, a different data-gathering design, described next, has much appeal.

The posttest-only control group design. In situations where a measure is likely to be reactive, the evaluator can rely on a clever data-gathering design that effectively dodges the reactivity problem. This *posttest-only control group design* is depicted in Figure 2.9. This design is the same as the pretest-posttest control group design, except that there is no pretest.

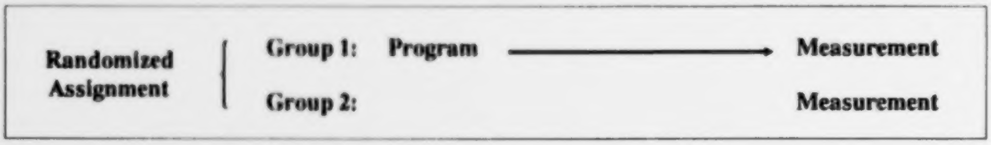

Figure 2.9: Posttest-Only Control Group Design

In this design, neither Group 1 nor Group 2 is pretested, but because of random assignment the groups can be considered equivalent prior to Group 1 receiving the program. Not pretesting Group 1 effectively avoids a pretest's potentially reactive effect on program participants. To assess the impact of the program, it is possible to contrast the *posttest* performances of Groups 1 and 2. As with the other control group designs, the untreated control group could be given the program the next time it is offered.

The basic dividend of the posttest-only control group design is that by measuring an untreated, randomly assigned control group, the evaluator secures an estimate of how program participants would have responded on a pretest, but without introducing the potentially reactive effects of a pretest. Although the diagram for this design suggests that the measurements be made for both groups at the conclusion of the program, it is possible to measure the untreated control group earlier if that seems advisable.

Multiple measures over time. There are certain situations in which health educators may wish to appraise the effects of their programs on the basis of periodic measurements, for example, by using regularly administered questionnaires or data that are routinely recorded. For instance, suppose when evaluating a "supervisor's stress awareness" program, the evaluator was interested in the number of stress-related referrals a company's supervisors make for their employees. Assuming that such information is available from the firm's health records, the evaluator might study records at periodic intervals before, during, and after the program. By observing the frequency of referrals during different time intervals, the evaluator would have valuable information regarding program effects.

A number of the most commonly used data-gathering designs have been described. There are other, more complex designs than those treated here.* Complexity, however, is rarely an asset if a simpler, more straightforward design is appropriate.

Sampling Considerations for Data Collection

The data-gathering requirements of an evaluation can become a burdensome intrusion into an ongoing health education program. Participants in a stress management program can become more than mildly stressed if evaluators are requiring them to complete measures every hour or so. Accordingly, evaluators should conduct their data-gathering activities in the least intrusive manner possible. One way to minimize an evaluation's intrusiveness is by relying on sampling techniques, such as person-sampling and item-sampling, each of which is described below.

Person-sampling. To estimate how a large group of people would respond on a particular measure, it is not necessary to administer the measure to all the individuals in the group. Instead, a smaller group can be selected. This smaller group can be either a *simple random sample* or a *stratified random sample,* that is, a sample stratified on the basis of program-relevant factors such as age, sex, and socioeconomic status. Assuming that the sample is randomly selected, the evaluator can estimate the status of the total group based on the responses of the sample.

Suppose, for example, that the evaluator wants to use a measure to determine participants' perceived ability to manage stress. Assuming that there is a reasonably large number of program participants, say 50 or so, the evaluator could randomly select half of the participants and administer the measure to this group only. In essence, this approach allows the evaluator to infer how the total group of participants would score on the measure, even though only half of the participants completed it. Thus, it is possible to estimate total group performance with only half the amount of participant time required for data-gathering.

Using a similar sampling procedure, evaluators can administer two or more measures at once in the time it takes to administer one. Suppose that two measures are to be given to program participants. The evaluator can randomly assign one measure to half of the participants and the other measure to the remaining participants. Each participant needs to respond to only one measure, but the evaluator can derive defensible estimates of how all the participants would have responded on both instruments.

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* For additional information about evaluation design options, see Annotated Bibliography Nos. 8, 11, 22, 23, and 34.

Item sampling. In addition to sampling persons, as in the previous examples, it is also possible to sample items, so that different sets of items from a program evaluation measure are randomly selected to be administered to different persons. Using this approach, the evaluator gives each participant only a sample of the items on any particular measure. For example, suppose a program evaluator wishes to administer a 30-item test. Given 60 participants in the program, the evaluator could divide the test into three sets of 10 items each and administer each set of 10 items to 20 different participants. In this way, the total group's performance on the whole test can be estimated. This approach to data-gathering requires only one-third of the time that would have been required to administer the total 30-item test to all participants.

Sample size. Given the relatively small number of participants in some health education programs, is it really appropriate to sample either persons or items? How large must groups be before these sampling procedures can be sensibly used? Unequivocal answers to these questions do not exist. Some texts on sampling provide rules of thumb for estimating the size of samples needed for detecting group differences in relation to the magnitude of differences sought and the nature of the groups being sampled. At best, though, these rules provide only rough estimates. It is important to recognize that the task of identifying a sufficiently large sample is more difficult than usually thought.

The variability of participants' anticipated performance on the measures is the primary determiner of the sample size necessary. If it is expected that participants' scores on a test will be relatively homogeneous, a smaller number of respondents will be needed than if participants' scores are expected to vary widely. Thus, if on a measure of knowledge about the positive ways to cope with stress, for example, some of the participants are expected to know many techniques and others are expected to know very few, reasonably large numbers of participants (e.g., 20) should respond to any one item.

Intuitively, one recognizes that when working with a very small group of program participants, the use of these sampling techniques is risky. For instance, if there were only 15 participants in a program, few evaluators would try to split these participants into three groups of five each for purposes of taking different sets of items. Even though each group represents one-third of the total population, there is too much likelihood that a sample of five individuals would not properly represent the total group. One or two atypical participants in a five-person group would render the group's average performance unrepresentative of how the larger group would have performed.

It should be noted that when employing procedures such as person-sampling or item-sampling, an evaluator is focusing on a group of participants *in the aggregate*. Because evaluations are typically concerned with the effects of programs on groups of participants, the use of sampling procedures is usually appropriate. If, however, program personnel need individual data on all examinees, then sampling should obviously not be employed.

For additional information about sampling procedures, see Annotated Bibliography Nos. 9 and 10.

Data Analysis

A frequent question asked of an evaluator is whether a study's results are statistically significant. For example, could the observed changes in program participants' knowledge or behavior from pretest to posttest have occurred simply by chance? Statistical tests are used to answer this type of question. Consideration of statistical analysis procedures, however, is beyond the scope of this handbook. Indeed, for those genuinely unfamiliar with statistical analysis, attempts to boil down such a complex subject into a few pages would constitute a severe stress-inducer. Thus, just a few comments will be made here regarding data analysis. Because there are many subtle choice-points in the statistical analysis of evaluation data, evaluators who are not well versed in at least the more common statistical procedures should probably enlist the aid of someone who is.

There are two basic classes of statistics, namely, descriptive statistics, such as the mean, and inferential statistics, such as the *t* test. *Descriptive statistics* help evaluators portray a group's performance on a given measure. For example, an evaluator might describe a set of participants' scores via the mean score (the scores' central tendency) and standard deviation of the scores (the scores' variability). Because the mean and standard deviation are frequently used, program evaluators should know how to calculate and interpret them. Any introductory statistics book for the social sciences will serve as a reference for this information. *Inferential statistics* help evaluators determine whether an observed difference between pre-program and post-program scores is *statistically significant,* that is, whether such a difference could have occurred because of chance alone. If the probability is small that the results are due to chance, the evaluator can, with reasonable confidence, attribute the results to the program.

Statistical significance, however, does not imply *practical significance*. A small difference between the average scores of two groups can be statistically significant, particularly when large numbers of participants are involved, yet be of no practical consequence whatsoever. Health educators will need to make sensible determinations regarding whether the magnitude of an observed difference, even though statistically significant, is sufficiently important to warrant action. In other words, although evaluators of health education programs should often carry out statistical significance tests, they should not be unduly swayed by the results of such analyses. Common sense must always be applied in interpreting the meaning of a statistically significant result.*

Reporting Results

Reporting the results of an evaluation study is a more difficult undertaking than is usually recognized. Considerable attention must be given to the procedures employed to report the results of health education program evaluations. When reporting evaluation results, as when focusing and planning the evaluation, the evaluator must be responsive to the needs of program decision-makers. A few key considerations should be kept in mind when reporting evaluation results.

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* For additional information about data analysis, see Annotated Bibliography Nos. 25, 36, 39, 43, and 45.

Evaluators must report their results to decision makers in a timely fashion. It does no good to deliver an evaluation report several weeks after key program decisions had to be made. Evaluators must also be careful to disseminate their findings to all appropriate audiences. If possible, an evaluator should circulate the preliminary draft of a program evaluation report to program personnel so that they can react to its accuracy and objectivity.

The decision makers whom evaluators are assisting may have scant experience with quantitative data. As a consequence, complicated statistical presentations may be of little value to them. Evaluators should select data presentation procedures that will match the technical sophistication of the decision makers involved. In any evaluation report, there is nothing wrong with simple graphs or "percentage correct" tables. The more intuitively comprehensible the data presentation techniques, the better they are. Program evaluators should provide straightforward presentations of data without fearing that such approaches will be regarded as too elementary. Adequate technical back-up can be appended as necessary to the final report.

Evaluators should not be reluctant to make speculations based upon their knowledge about a program, but these conjectures should be identified as such. Similarly, if any of the evaluation's findings are equivocal, the evaluator should inform concerned audiences of this fact. Honesty and objectivity are the hallmarks of effective evaluation reporting.

In addition, because decision makers are typically busy people, evaluators should strive for reasonable brevity in their reports. The preparation of executive summaries to accompany lengthy reports is a useful practice. Voluminous evaluation reports are almost certainly destined to go unread. Terse, easily read reports are much more likely to make an impact on decision makers.

The whole thrust of the evaluation enterprise is to facilitate better decisions. Decision making will *not* be illuminated by complex, lengthy, or otherwise incomprehensible presentations of evaluation results. The quality of decision making can be enhanced only if an evaluation's results are reported in a way that can be clearly understood.*

Reprise

In this chapter, a number of issues almost certain to be encountered by evaluators of stress management programs were considered. Because this handbook supplies a number of measures to be used in the evaluation process, special attention was given to the role of such measures in program evaluation. Evaluators desiring more detailed treatments of the topics covered in this chapter will find appropriate sources in the Annotated Bibliography.**

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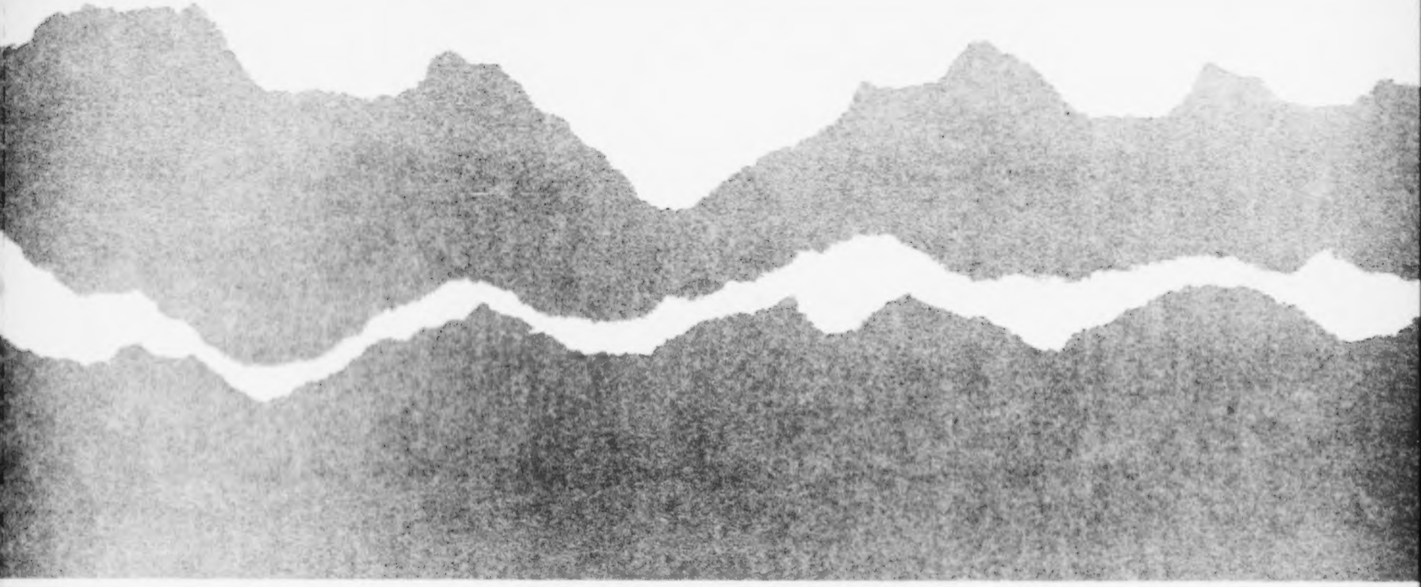
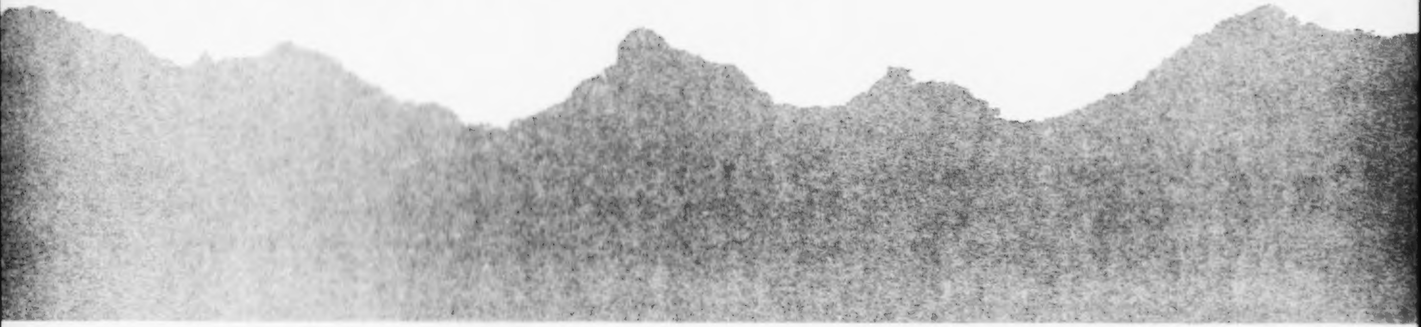
* For additional information about reporting the results of an evaluation, see Annotated Bibliography Nos. 5, 23, 26, and 34.

** For additional information about program evaluation, see Annotated Bibliography Nos. 5, 13, 15, 20, 23, 32, 41, 46, 49, and 51.



CHAPTER THREE

Program Evaluation Measures



Overview of Measures

Category	Title	Target Group	Description	Page No.
Behavior	**Stress Management Checklist**	Adults Adolescents	Assesses use of stress management techniques.	39
	How You Deal with Your Stress	Adolescents Preadolescents		44
Knowledge*	**Facts About Stress**	Adults Adolescents	Assesses knowledge of the causes and effects of stress.	49
	Learning About Stress	Adolescents Preadolescents		55
	Coping with Stress	Adults Adolescents	Assesses knowledge of stress management techniques.	59
	Ways to Lower Stress	Adolescents Preadolescents		65
Skill	**Appropriate Responses to Stress**	Adults	Assesses ability to select appropriate courses of action for reducing stress.	69
	How to Lower Stress	Adolescents Preadolescents		81
Affective	**How Will You Feel?**	Adults	Assesses importance of twelve quality-of-life factors and participant's expected satisfaction in one year.	89

* The information eligible for inclusion in the knowledge measures is provided in Appendix A as amplified content descriptors.

Category	Title	Target Group	Description	Page No.
Affective	**Keeping Your Cool**	Adults	Assesses perceived ability to manage stress.	92
	Could You Deal with It?	Adolescents Preadolescents		95
	How Will You Cope?	Adults Adolescents	Assesses intention to use stress management techniques.	98
	What Will You Do?	Adolescents Preadolescents		102
	People in Your Life	Adults	Assesses perceived support from other people.	106
	The People You Know	Adolescents Preadolescents		109
	Life Satisfaction Inventory	Adults	Assesses participant's current satisfaction with several quality-of-life factors.	112
	Are You Happy?	Adolescents Preadolescents		115
	Ideas About Decisions	Adolescents Preadolescents	Assesses belief in the value of careful decision-making.	117

STRESS MANAGEMENT CHECKLIST

This behavior measure examines the frequency with which participants have used a variety of stress management techniques during the recent past. After describing frequency of use, participants indicate how helpful each technique was in reducing stress. Both positive and negative techniques for managing stress are included on the measure. This measure is appropriate for adults and adolescents.

If this measure seems useful, you might also want to consider the **How Will You Cope?** measure, which is an affective measure assessing participants' **intention** to use stress management techniques.

PURPOSE

Information regarding participants' use of coping techniques may be helpful for the following reasons:

- Administration of this measure at the beginning of the program may provide needs assessment information. For example, results from this measure may indicate the need to (1) broaden participants' array of positive coping techniques, (2) increase the frequency with which they use positive rather than negative techniques, and/or (3) strengthen participants' beliefs in the value of positive coping strategies.
- When given at the beginning and end of a program, results will demonstrate changes in the frequency with which participants use positive versus negative coping techniques, the variety of positive techniques used, and the perception of the effectiveness of using positive coping techniques on stress.

PROCEDURES

In most cases, this instrument should be administered both at the beginning and the end of the program. If the program is fairly long, (several months or more), the instrument may be given as it exists in this handbook. If the program is shorter than two months, it is possible that the program will not produce the behavioral changes measured by this instrument. Short term gains in this area can be more realistically measured by **How Will You Cope?**—an affective measure found later in this chapter. Programs of shorter duration will still be able to use this measure for the purposes listed above for the beginning of the program. However, if such programs wish to measure pretest to posttest gains using this instrument, the instructions that include the term *"recent past"* should be changed to read:

"Think back over the *past few weeks*."

and

"In the *past few weeks,* when you experienced stress, how often did you . . ."

Column 1: Frequency

Items 2, 4, 9, 14, 16, 19, 22, 24, and 26, are commonly considered some of the *negative* ways for handling stress. For purposes of scoring, they will be labeled "negative items." Items 1, 3, 5, 6, 7, 8, 10, 11, 12, 13, 15, 17, 18, 20, 21, 23, and 25, are *positive* coping techniques. They will be labeled "positive items."

Total Score for Negative Items Marked OFTEN or SOMETIMES

1. Count the number of negative items that are marked either OFTEN or SOMETIMES. (Ignore any blank or NO responses.)
2. Divide this total by the number of program participants.

EXAMPLE: Imagine that there are 10 program participants. First, count all the times that these individuals marked either OFTEN or SOMETIMES on the negative items (2, 4, 9, 14, 16, 19, 22, and 24). Let's assume the total number of times was 55. Then, divide 55 by 10 participants to get an average score of 5.5.

Scores can range from 0-9. A low group average indicates that the group of participants uses few negative coping techniques and a high group average indicates the use of many negative techniques.

Subtotal Score for Negative Items Marked OFTEN or SOMETIMES

1. Count only the number of negative items that are marked OFTEN on the negative items (2, 4, 9, 14, 16, 19, 22, 24, and 26).
2. Divide this total by the number of times the negative items are marked OFTEN or SOMETIMES. Multiply this number by 100 to determine the percentage.

EXAMPLE: For the same 10 individuals used in the example above, count the number of times they marked OFTEN on the negative items. Let's assume the total was 35. Then, divide by the total number of times the 10 individuals marked either OFTEN or SOMETIMES on the negative items. This number was already determined to be 55 in the previous example. Now, divide 35 by 55 to find out, of the negative strategies used, what percentage are used OFTEN. In this case, 35/55 is about 64%. Thus, of the negative strategies used, 64% are used often, and 36% are used sometimes.

Besides seeing an overall reduction in the number of negative coping strategies employed, program evaluators would hopefully see a decrease in the OFTEN percentage and an increase in the SOMETIMES percentage when the measure is administered at the beginning and end of the program.

Scoring for Positive Items Marked OFTEN or SOMETIMES

Items measuring frequency of use of positive techniques for handling stress can be scored in the same manner as the negative items. However, in this case, because of the larger number of positive items on the instrument, the possible range of scores is from 0-17 with low scores indicating the use of few positive coping strategies and high scores indicating the use of many positive strategies. It would be desirable to see a higher percentage of OFTENs being reported for the use of positive coping strategies.

> **Note: When dealing with the scoring of positive stress management techniques, program evaluators should not be overly concerned about group scores that do not extend into the upper end of the range. It seems unlikely that even the most skilled positive stress management participants would use all the positive coping strategies listed. Rather, individual participants may find a limited number of positive strategies that work well for them.**

Column 2: Did it help to reduce your stress?

Information from Column 2 indicates participants' perceptions regarding the effectiveness of the positive techniques that they use to cope with stress. This column can be scored by focusing on the positive items (see paragraph one under Column 1: Frequency).

Scoring:

1. Count the number of positive items marked A LOT or A LITTLE.
2. Divide that total by the total number of positive items marked OFTEN or SOMETIMES in Column 1. (Be sure not to include any responses marked NEVER in Column 1.)
3. Multiply by 100 to determine a percentage.
4. Repeat steps 1 - 3 with positive items marked NO.

The percentages give the program evaluator an indication of the participants' perception of the effectiveness of the positive stress management techniques being used.

> *EXAMPLE: For the same 10 individuals used in the examples above, count the number of positive items (1, 3, 5, 6, 7, 8, 10, 11, 12, 13, 15, 17, 18, 20, 21, 23, and 25) that are marked A LOT or A LITTLE. Let's assume that this total was 115. Now, count the number of positive items marked OFTEN or SOMETIMES in Column 1; let's say 160. Then, divide the Column 2 total by the Column 1 total. In this case 115/160 is about .72 or 72%. Calculating the positive items marked NO using the same method would yield about 28%. Thus, 72% of the participants felt that they were helped to some degree by the positive coping strategies they used; 28% felt they were not helped.*

STRESS MANAGEMENT CHECKLIST

Listed below are things people may do when they experience stress. Think back over the recent past. Think about how you coped with any problems or stressful situations that you faced in the recent past. Put a check in Column 1 to show how often you did each thing when you experienced stress. Put a check in Column 2 to show whether or not the action helped to reduce your stress. If you checked NEVER in Column 1, you do not need to answer Column 2 for that item.

	Column 1			**Column 2**		
In the *recent past*, when you experienced stress, how frequently did you . . .				**Did it help to** *reduce your stress?*		
	Often	**Sometimes**	**Never**	**A Lot**	**A Little**	**No**
1. tell yourself positive things?	( )	( )	( )	( )	( )	( )
2. drink more coffee?	( )	( )	( )	( )	( )	( )
3. try to figure out what upset you about the problem?	( )	( )	( )	( )	( )	( )
4. eat more?	( )	( )	( )	( )	( )	( )
5. find humor in the situation?	( )	( )	( )	( )	( )	( )
6. use relaxation techniques?	( )	( )	( )	( )	( )	( )
7. exercise more?	( )	( )	( )	( )	( )	( )
8. talk about the situation with the people who were involved?	( )	( )	( )	( )	( )	( )
9. smoke more?	( )	( )	( )	( )	( )	( )
10. think about the positive side of the situation?	( )	( )	( )	( )	( )	( )
11. think through how you would handle the situation?	( )	( )	( )	( )	( )	( )
12. try to get more information about the situation?	( )	( )	( )	( )	( )	( )

	Column 1			Column 2		
In the *recent past*, when you experienced stress, how frequently did you . . .				**Did it help to *reduce your stress?***		
	Often	**Sometimes**	**Never**	**A Lot**	**A Little**	**No**
13. make a plan of action and follow it?	( )	( )	( )	( )	( )	( )
14. drink more alcohol?	( )	( )	( )	( )	( )	( )
15. accept the situation if nothing could be done to change it?	( )	( )	( )	( )	( )	( )
16. take drugs or non-prescription medications?	( )	( )	( )	( )	( )	( )
17. take things one step at a time?	( )	( )	( )	( )	( )	( )
18. talk about your feelings with your family or friends?	( )	( )	( )	( )	( )	( )
19. take your frustration out on other people?	( )	( )	( )	( )	( )	( )
20. learn new skills to help you deal with the situation?	( )	( )	( )	( )	( )	( )
21. get advice from someone who could help you?	( )	( )	( )	( )	( )	( )
22. take the blame for a problem that wasn't your fault?	( )	( )	( )	( )	( )	( )
23. do other things for awhile to give your mind a rest from the situation?	( )	( )	( )	( )	( )	( )
24. keep your feelings to yourself?	( )	( )	( )	( )	( )	( )
25. consider several alternatives for handling the situation?	( )	( )	( )	( )	( )	( )
26. sleep more?	( )	( )	( )	( )	( )	( )

HOW YOU DEAL WITH YOUR STRESS

This behavior measure examines the frequency with which participants have used a variety of stress management techniques during the recent past. After describing frequency of use, participants indicate how helpful each technique was in reducing stress. Both positive and negative techniques for managing stress are included on the measure. This measure is appropriate for adolescents and preadolescents.

If this measure seems useful, you might also want to consider the **What Will You Do?** measure, which is an affective measure assessing participants' **intention** to use stress management techniques.

PURPOSE

Information regarding participants' use of coping techniques may be helpful for the following reasons:

- Administration of this measure at the beginning of the program may provide needs assessment information. For example, results from this measure may indicate the need to (1) broaden participants' array of positive coping techniques, (2) increase the frequency with which they use positive rather than negative techniques, and/or (3) strengthen participants' beliefs in the value of positive coping strategies.
- When given at the beginning and end of a program, results will demonstrate changes in the frequency with which participants use positive versus negative coping techniques, the variety of positive techniques used, and the perception of the effectiveness of using positive coping techniques on stress.

PROCEDURES

In most cases, this instrument should be administered both at the beginning and the end of the program. If the program is fairly long, (several months or more), the instrument may be given as it exists in this handbook. If the program is shorter than two months, it is possible that the program will not produce the behavioral changes measured by this instrument. Short term gains in this area can be more realistically measured by **What Will You Do?**—an affective measure found later in this chapter. Programs of shorter duration will still be able to use this measure for the purposes listed above for the beginning of the program. However, if such programs wish to measure pretest to posttest gains using this instrument, the instructions that include the term *"recent past"* should be changed to read:

"Think back over the *past few weeks*."

and

"In the *past few weeks,* when you experienced stress, how often did you . . ."

SCORING AND ANALYSIS

Column 1: Frequency

Items 6, 10, 13, 15, 18, and 19 are commonly considered some of the *negative* ways for handling stress. For purposes of scoring, they will be labeled "negative items." The remaining items are *positive* coping techniques. They will be labeled "positive items."

Total Score for Negative Items Marked A LOT or SOMETIMES

1. Count the number of negative items that are marked either A LOT or SOMETIMES. (Ignore any blank or NEVER responses.)
2. Divide this total by the number of program participants.

   EXAMPLE: Imagine that there are 10 program participants. First, count all the times that these individuals marked either A LOT or SOMETIMES on the negative items (6, 10, 13, 15, 18, and 19). Let's assume the total number of times was 32. Then, divide 32 by 10 participants to get an average score of 3.2.

Scores can range from 0-6 with low numbers indicating a group of participants who use few negative coping techniques and high numbers indicating the use of many negative techniques.

Subtotal Score for Negative Items Marked A LOT or SOMETIMES

1. Count only the number of negative items (6, 10, 13, 15, 18, and 19) that are marked A LOT.
2. Divide this total by the number of times the negative items were marked A LOT or SOMETIMES. Multiply this number times 100 to obtain a percentage.

   EXAMPLE: For the same 10 individuals used in the example above, count the number of times they marked A LOT on the negative items. Let's assume the total was 11. Then, divide by the total number of times the 10 individuals marked either A LOT or SOMETIMES on the negative items. This number was already determined to be 32 in the previous example. Thus, divide 11 by 32 to find out, of the negative strategies used, what percent are used A LOT. In this case, 11/32 is about 34%. Thus, of negative strategies used, 34% are used often, and 66% are used sometimes.

Besides seeing overall reduction in the number of negative coping strategies employed at the beginning of the program, program evaluators would hopefully see a decrease in the A LOT percentage and an increase in the SOMETIMES percentage when the measure is administered at the beginning and end of the program.

Scoring for Positive Items Marked A LOT or SOMETIMES

Items measuring frequency of use of positive techniques for handling stress can be scored in the same manner as the negative items. However, in this case, because of the larger number of positive items on the instrument, the possible range of scores is from 0-15 with low scores indicating the use of few positive coping strategies and high numbers indicating the use of many positive strategies. The determination of percentages for the SOMETIMES and A LOT columns can also be done with the positive strategies. It would be desirable to see a higher percentage of A LOTs being reported for the use of positive coping strategies.

> **Note: When dealing with the scoring of positive stress management techniques, program evaluators should not be overly concerned about group scores that do not extend into the upper end of the range. It seems unlikely that even the most skilled positive stress management participants would use all the positive coping strategies listed. Rather, individual participants may find several positive strategies that work well for them.**

Column 2: Did it help to reduce your stress?

Information from Column 2 indicates participants' perceptions regarding the effectiveness of the positive techniques that they use to cope with stress. This column can be scored by focusing on the positive items (see paragraph one under Column 1: Frequency).

Scoring:

1. Count the number of positive items marked A LOT or A LITTLE.
2. Divide that total by the total number of positive items marked A LOT or SOMETIMES in Column 1. (Be sure not to include any responses marked NEVER in Column 1.)
3. Multiply by 100 to obtain a percentage.
4. Repeat steps 1 - 3 with positive items marked NO.

The percentages give the program evaluator an indication of the participants' perception of the effectiveness of the positive stress management techniques being used.

> *EXAMPLE: For the same 10 individuals used in the examples above, count the number of positive items (any item that is not 6, 10, 13, 15, 18, and 19) that they marked A LOT or A LITTLE. Let's assume that this total was 95. Now, count the number of positive items marked A LOT or SOMETIMES in Column 1; let's say 140. Then, divide the Column 2 total by the Column 1 total. In this case 95/140 is about .68 or 68%. Thus, 68% of the participants felt that they were helped to some degree by the positive coping strategies they used. The percentage of positive items marked NO could be obtained using the same method.*

HOW YOU DEAL WITH YOUR STRESS

Listed below are things people may do when they experience stress. Think back over the recent past. Think about how you coped with any problems or stressful situations that you faced in the recent past. Put a check in Column 1 to show how often you did each thing when you experienced stress. Put a check in Column 2 to show whether or not the action helped to reduce your stress. If you checked NEVER in Column 1, you do not need to answer Column 2 for that item.

In the *recent past*, when you felt stress, how often did you . . .

Did it help to *reduce your stress?*

		Column 1			**Column 2**		
		A Lot	**Some-times**	**Never**	**A Lot**	**A Little**	**No**
1.	think about the good things in your life?	( )	( )	( )	( )	( )	( )
2.	try to figure out what upset you about the problem?	( )	( )	( )	( )	( )	( )
3.	use relaxation skills?	( )	( )	( )	( )	( )	( )
4.	try to see the good side of the situation?	( )	( )	( )	( )	( )	( )
5.	exercise more?	( )	( )	( )	( )	( )	( )
6.	smoke cigarettes?	( )	( )	( )	( )	( )	( )
7.	think about how you would handle the situation?	( )	( )	( )	( )	( )	( )
8.	try to get more information about the situation?	( )	( )	( )	( )	( )	( )
9.	make a plan of action and follow it?	( )	( )	( )	( )	( )	( )
10.	have a drink (such as beer or wine)?	( )	( )	( )	( )	( )	( )
11.	accept the situation if nothing could be done to change it?	( )	( )	( )	( )	( )	( )

In the *recent past*, when you felt stress, how often did you . . .	**Column 1**			**Column 2** **Did it help to *reduce your stress?***		
	A Lot	**Some-times**	**Never**	**A Lot**	**A Little**	**No**
12. do other things for awhile to get your mind off the situation?	( )	( )	( )	( )	( )	( )
13. get high?	( )	( )	( )	( )	( )	( )
14. talk about your feelings with your family?	( )	( )	( )	( )	( )	( )
15. take your anger out on other people?	( )	( )	( )	( )	( )	( )
16. learn new skills to help you deal with the situation?	( )	( )	( )	( )	( )	( )
17. ask others for help if you needed it?	( )	( )	( )	( )	( )	( )
18. take the blame for a problem that wasn't your fault?	( )	( )	( )	( )	( )	( )
19. keep your feelings to yourself?	( )	( )	( )	( )	( )	( )
20. think about some different ways to handle the situation?	( )	( )	( )	( )	( )	( )
21. talk about your feelings with your friends?	( )	( )	( )	( )	( )	( )

FACTS ABOUT STRESS

(FORMS A & B)

This knowledge measure examines what participants know about the types of activities and events that cause stress and the physical and psychological effects of stress. This measure is appropriate for adults and adolescents.

PURPOSE

Information regarding participants' knowledge of the causes and effects of stress may be useful for the following reasons:

- Administration of this measure at the beginning of the program may provide needs assessment information. For example, the results may be used to assess what participants know prior to program participation. Decisions about how to allocate instructional time can then be made based on the prior knowledge of participants.
- When the measure is administered prior to and following a program, it is possible to evaluate growth in participants' knowledge.

PROCEDURES

Because the equidifficulty of the forms has not been established, it is best not to give all participants Form A as a pretest and Form B as a posttest. Instead, choose either of the following methods.

- Review Forms A and B and select one. Give all participants the selected form both before and after the program. Alternatively, select 20 items from the two forms and construct a measure most consistent with your program emphasis. Then administer the "new" form both before and after the program.
- Give Form A to half of the incoming participants and Form B to the remaining half. To distribute the forms randomly, order them "ABABAB" and hand them out. Following the program, give each participant the form not previously taken. For example, if a participant was given Form B before the program, then that participant should be given Form A following the program. This approach eliminates the possibility that examinees will be sensitized to the specific facts to be learned from the program.

SCORING AND ANALYSIS

The answer keys for the two forms are provided below:

Item No.	Form A	Form B
1	T	F
2	T	F
3	F	T
4	F	F
5	T	F
6	F	T
7	T	T
8	F	T
9	F	T
10	T	F
11	F	F
12	T	F
13	F	T
14	T	T
15	F	F
16	T	F
17	T	T
18	T	T
19	F	T
20	F	F

The measures should be scored by counting the number of answers correct for each participant. Items marked "Don't Know" or left blank should be scored as incorrect. Count the number of correct answers for each participant. Next, total the correct answers for the group and divide by the number of participants in the group. The mean number of correct answers and the standard deviation can be used to summarize participant performance on the measure. Means and standard deviations from before and after the program can be compared to determine changes in participants' knowledge.

FACTS ABOUT STRESS

Form A

This test consists of 20 statements about stress. Put a check to show whether you think each statement is TRUE or FALSE. If you don't know whether a statement is true or false, put a check under DON'T KNOW.

True	False	Don't Know	
( )	( )	( )	1. Loud noise can be stressful.
( )	( )	( )	2. Seeing problems as worse than they are can cause stress.
( )	( )	( )	3. Going through many significant life changes at the same time rarely increases people's chances of getting sick.
( )	( )	( )	4. A person who is experiencing stress is usually sensitive to other people's feelings.
( )	( )	( )	5. Stress can cause ulcers.
( )	( )	( )	6. Slow breathing is one of the physical responses to stressors.
( )	( )	( )	7. Stress may decrease the body's ability to defend itself against disease.
( )	( )	( )	8. Being bored is usually not stressful.
( )	( )	( )	9. A person with a Type A personality typically tries to do one thing at a time.
( )	( )	( )	10. Stress is usually harmful if it lasts for long time.
( )	( )	( )	11. A person who is experiencing extreme stress thinks more clearly than usual.
( )	( )	( )	12. Drinking a lot of coffee makes some people anxious.

True	False	Don't Know		
( )	( )	( )	13.	Unpleasant thoughts by themselves usually are not enough to cause stress.
( )	( )	( )	14.	People may resume bad habits when they are experiencing stress.
( )	( )	( )	15.	Almost everyone interprets demanding events in the same way.
( )	( )	( )	16.	High blood pressure can damage the heart.
( )	( )	( )	17.	A person's heredity may influence the type of stress-related illness that the person gets.
( )	( )	( )	18.	Experiencing stress may make a person eat more than usual.
( )	( )	( )	19.	People's attitudes rarely influence their reactions to stressors.
( )	( )	( )	20.	The more someone knows about a stressor, the more stress it will cause.

FACTS ABOUT STRESS

Form B

This test consists of 20 statements about stress. Put a check to show whether you think each statement is TRUE or FALSE. If you don't know whether a statement is true or false, put a check under DON'T KNOW.

True	False	Don't Know	
( )	( )	( )	1. Too much stimulation is always more stressful than too little.
( )	( )	( )	2. One way the body responds to stressors is to reduce blood pressure.
( )	( )	( )	3. Stress can result from the demands of any situation.
( )	( )	( )	4. Stress rarely causes muscular problems.
( )	( )	( )	5. Thinking about an unpleasant event is never as stressful as actually experiencing the event.
( )	( )	( )	6. Thinking of oneself as useless can increase one's stress.
( )	( )	( )	7. Getting injured can be stressful.
( )	( )	( )	8. Stress can improve a person's performance.
( )	( )	( )	9. People are more likely to have accidents when they experience severe stress.
( )	( )	( )	10. Hormones present when a person experiences stress for a long time increase the body's ability to fight infection.
( )	( )	( )	11. An ordinary event that happens every day is not one of the usual causes of stress.
( )	( )	( )	12. A person who is experiencing extreme stress performs most tasks better than usual.

Facts About Stress (Form B), p. 2

True	**False**	**Don't Know**		
( )	( )	( )	13.	Some stress is inevitable in day-to-day living.
( )	( )	( )	14.	Something that causes stress is called a stressor.
( )	( )	( )	15.	Positive life changes are not stressful.
( )	( )	( )	16.	Predictable and unpredictable events are equally stressful.
( )	( )	( )	17.	The body's responses to stressors occur without thinking.
( )	( )	( )	18.	The Type A personality is associated with heart disease.
( )	( )	( )	19.	Experiencing stress may make a person drink more alcohol than usual.
( )	( )	( )	20.	Stress is not usually associated with a serious illness such as cancer.

LEARNING ABOUT STRESS

(FORMS A & B)

This knowledge measure examines what participants' know about the types of activities and events that cause stress and the physical and psychological effects of stress. This measure is appropriate for adolescents and preadolescents.

PURPOSE

Information regarding participants' knowledge of the causes and effects of stress may be useful for the following reasons:

- Administration of this measure at the beginning of the program may provide needs assessment information. For example, the results may be used to assess what participants know prior to program participation. Decisions about how to allocate instructional time can then be made based on the prior knowledge of participants.
- When the measure is administered prior to and following a program, it is possible to evaluate growth in participants' knowledge.

PROCEDURES

Because the equidifficulty of the forms has not been established, it is best not to give all participants Form A as a pretest and Form B as a posttest. Instead, choose either of the following methods.

- Review Forms A and B and select one. Give all participants the selected form both before and after the program. Alternatively, select 15 items from the two forms and construct a measure most consistent with your program emphasis. Then administer the "new" form both before and after the program.
- Give Form A to half of the incoming participants and Form B to the remaining half. To distribute the forms randomly, order them "ABABAB" and hand them out. Following the program, give each participant the form not previously taken. For example, if a participant was given Form B before the program, then that participant should be given Form A following the program. This approach eliminates the possibility that examinees will be sensitized to the specific facts to be learned from the program.

SCORING AND ANALYSIS

The answer keys for the two forms are provided below:

Item No.	Form A	Form B
1	T	T
2	T	F
3	T	F
4	F	T
5	F	T
6	T	F
7	T	F
8	F	F
9	F	T
10	T	T
11	T	T
12	F	T
13	F	F
14	F	F
15	T	F

The measures should be scored by counting the number of answers correct for each participant. Items marked "Don't Know" or left blank should be scored as incorrect. Count the number of correct answers for each participant. Next, total the correct answers for the group and divide by the number of participants in the group. The mean number of correct answers and the standard deviation can be used to summarize participant performance on the measure. Means and standard deviations from before and after the program can be compared to determine changes in participant knowledge.

LEARNING ABOUT STRESS

Form A

This test contains 15 statements about stress. Put a check to show whether you think each statement is TRUE or FALSE. If you don't know whether a statement is true or false, put a check under DON'T KNOW.

True	False	Don't Know	
( )	( )	( )	1. Changing schools can cause stress.
( )	( )	( )	2. Stress can be harmful when it lasts too long.
( )	( )	( )	3. Having too much to do at home can cause stress.
( )	( )	( )	4. People who are feeling a lot of stress do most things better than usual.
( )	( )	( )	5. A person who is feeling stress usually notices other people's feelings.
( )	( )	( )	6. Unexpected things can cause stress.
( )	( )	( )	7. Stress can cause muscle problems.
( )	( )	( )	8. Thinking about something unpleasant never causes as much stress as actually doing something unpleasant.
( )	( )	( )	9. High blood pressure is not that dangerous to your health.
( )	( )	( )	10. Feeling stress may make a person drink too much alcohol.
( )	( )	( )	11. The amount of stress people feel depends somewhat on how they feel about their surroundings.
( )	( )	( )	12. Good life changes do not cause stress.
( )	( )	( )	13. If people are careful they can avoid all stress.
( )	( )	( )	14. The heart slows down in times of stress.
( )	( )	( )	15. People may feel stress when they can't do what they want.

LEARNING ABOUT STRESS

Form B

This test contains 15 statements about stress. Put a check to show whether you think each statement is TRUE or FALSE. If you don't know whether a statement is true or false, put a check under DON'T KNOW.

True	**False**	**Don't Know**		
( )	( )	( )	1.	The body uses more vitamins than usual in times of stress.
( )	( )	( )	2.	People usually do not feel stress when they are bored.
( )	( )	( )	3.	The ordinary things that happen every day usually do not cause stress.
( )	( )	( )	4.	People may feel stress when they think they are not liked by others.
( )	( )	( )	5.	Important changes, like moving to a new city, can cause stress.
( )	( )	( )	6.	Just thinking about an unhappy time usually does not cause stress.
( )	( )	( )	7.	Only adults feel stress.
( )	( )	( )	8.	Any amount of stress is bad for you.
( )	( )	( )	9.	Feeling stress may make a person eat less than usual.
( )	( )	( )	10.	People may feel stress when they want to control something and can't.
( )	( )	( )	11.	People may feel stress when they have too many things to do.
( )	( )	( )	12.	A person who is feeling stress may seem happy.
( )	( )	( )	13.	Having too much to do always causes more stress than having too little to do.
( )	( )	( )	14.	People who are feeling a lot of stress think more clearly than usual.
( )	( )	( )	15.	Breathing slows down during times of stress.

COPING WITH STRESS

(FORMS A & B)

This knowledge measure examines what participants' know about the techniques that aid in the management and/or reduction of stress. This measure is appropriate for adults and adolescents.

PURPOSE

Information regarding participants' knowledge of the causes and effects of stress may be useful for the following reasons:

- Administration of this measure at the beginning of the program may provide needs assessment information. For example, the results may be used to assess what participants know prior to program participation. Decisions about how to allocate instructional time can then be made based on the prior knowledge of participants.
- When the measure is administered prior to and following a program, it is possible to evaluate growth in participants' knowledge.

PROCEDURES

Because the equidifficulty of the forms has not been established, it is best not to give all participants Form A as a pretest and Form B as a posttest. Instead, choose either of the following methods.

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SCORING AND ANALYSIS

The answer keys for the two forms are provided below:

Item No.	Form A	Form B
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6	F	T
7	T	F
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9	T	T
10	T	T
11	T	F
12	F	T
13	T	T
14	F	T
15	F	F
16	F	F
17	T	T
18	F	F
19	F	T
20	T	F

The measures should be scored by counting the number of answers correct for each participant. Items marked "Don't Know" or left blank should be scored as incorrect. Count the number of correct answers for each participant. Next, total the correct answers for the group and divide by the number of participants in the group. The mean number of correct answers and the standard deviation can be used to summarize participant performance on the measure. Means and standard deviations from before and after the program can be compared to determine changes in participant knowledge.

COPING WITH STRESS

Form A

This test consists of 20 statements about stress. Put a check to show whether you think each statement is TRUE or FALSE. If you don't know whether a statement is true or false, put a check under DON'T KNOW.

True	False	Don't Know		
( )	( )	( )	1.	Having good friends helps to reduce stress.
( )	( )	( )	2.	The human body needs more caffeine when a person is anxious.
( )	( )	( )	3.	Leaving the most important task for last helps to reduce stress.
( )	( )	( )	4.	Relaxation techniques help people become more aware of how their bodies respond to stress.
( )	( )	( )	5.	Setting up a daily schedule often helps to reduce stress.
( )	( )	( )	6.	It is better to put up with a stressful situation than to try to change it.
( )	( )	( )	7.	In many forms of meditation, attention is focused on one thing, such as a word or sound.
( )	( )	( )	8.	People can avoid all stressors if they want to.
( )	( )	( )	9.	Walking can be an effective way to reduce stress.
( )	( )	( )	10.	Relaxation relieves many muscular problems caused by stress.
( )	( )	( )	11.	Planning activities for periods of boredom often helps to reduce stress.

True	False	Don't Know	
( )	( )	( )	12. When exercising to reduce stress, people should try to push themselves as much as possible.
( )	( )	( )	13. One way to reduce stress is to become less competitive.
( )	( )	( )	14. When a person feels overwhelmed, delegating responsibility to others will increase stress.
( )	( )	( )	15. To be effective, relaxation techniques must be practiced at the same time each day.
( )	( )	( )	16. People usually feel more stress if they talk to others who have similar troubles.
( )	( )	( )	17. Biofeedback uses an instrument to monitor certain changes in the body.
( )	( )	( )	18. One characteristic of relaxation is faster breathing.
( )	( )	( )	19. Regular physical activity will increase the effects of stressors.
( )	( )	( )	20. Finding alternatives for goals that one has been unable to accomplish often helps to reduce stress.

COPING WITH STRESS

Form B

This test consists of 20 statements about stress. Put a check to show whether you think each statement is TRUE or FALSE. If you don't know whether a statement is true or false, put a check under DON'T KNOW.

True	False	Don't Know	
( )	( )	( )	1. Talking to others who have similar troubles rarely reduces stress.
( )	( )	( )	2. When starting up an exercise program to reduce stress, one should use vigorous activities.
( )	( )	( )	3. Breaking down complicated tasks into smaller parts often reduces stress.
( )	( )	( )	4. People should avoid all situations in which they experience stress.
( )	( )	( )	5. One way to reduce stress is to avoid changes that are not necessary.
( )	( )	( )	6. A person's heartbeat can be monitored by biofeedback.
( )	( )	( )	7. It is not vital to identify situations that cause stress.
( )	( )	( )	8. When trying to reduce stress, people should change their behavior rather than the environment.
( )	( )	( )	9. One way to reduce stress is to make a plan of action and follow through with it.
( )	( )	( )	10. Getting one's mind off a problem by doing something else for awhile often reduces stress.

True	False	Don't Know		
( )	( )	( )	11.	Everyone should cope with similar stressors in the same way.
( )	( )	( )	12.	Progressive relaxation helps to relieve backaches caused by stress.
( )	( )	( )	13.	Getting information about a stressor often helps to reduce stress.
( )	( )	( )	14.	People who can effectively manage their time are less likely to feel stress.
( )	( )	( )	15.	Hoping people will be perfect is an effective way to reduce stress.
( )	( )	( )	16.	Meditating usually does not help people relax.
( )	( )	( )	17.	Focusing on one's positive qualities often helps to reduce stress.
( )	( )	( )	18.	A faster heart rate is one characteristic of relaxation.
( )	( )	( )	19.	Thinking through how one might handle a stressor often reduces stress.
( )	( )	( )	20.	To be effective, relaxation techniques must be done in the same place each day.

WAYS TO LOWER STRESS

(FORMS A & B)

This knowledge measure examines what participants' know about the techniques that aid in the management and/or reduction of stress. This measure is appropriate for adolescents and preadolescents.

PURPOSE

Information regarding participants' knowledge of the causes and effects of stress may be useful for the following reasons:

- Administration of this measure at the beginning of the program may provide needs assessment information. For example, the results may be used to assess what participants know prior to program participation. Decisions about how to allocate instructional time can then be made based on the prior knowledge of participants.
- When the measure is administered prior to and following a program, it is possible to evaluate growth in participants' knowledge.

PROCEDURES

Because the equidifficulty of the forms has not been established, it is best not to give all participants Form A as a pretest and Form B as a posttest. Instead, choose either of the following methods.

- Review Forms A and B and select one. Give all participants the selected form both before and after the program. Alternatively, select 15 items from the two forms and construct a measure most consistent with your program emphasis. Then administer the "new" form both before and after the program.
- Give Form A to half of the incoming participants and Form B to the remaining half. To distribute the forms randomly, order them "ABABAB" and hand them out. Following the program, give each participant the form not previously taken. For example, if a participant was given Form B before the program, then that participant should be given Form A following the program. This approach eliminates the possibility that examinees will be sensitized to the specific facts to be learned from the program.

SCORING AND ANALYSIS

The answer keys for the two forms are provided below:

Item No.	Form A	Form B
1	T	T
2	F	T
3	F	T
4	T	T
5	T	T
6	F	F
7	T	F
8	T	T
9	T	F
10	T	F
11	F	T
12	F	F
13	F	T
14	T	F
15	F	F

The measures should be scored by counting the number of answers correct for each participant. Items marked "Don't Know" or left blank should be scored as incorrect. Count the number of correct answers for each participant. Next, total the correct answers for the group and divide by the number of participants in the group. The mean number of correct answers and the standard deviation can be used to summarize participant performance on the measure. Means and standard deviations from before and after the program can be compared to determine changes in participant knowledge.

WAYS TO LOWER STRESS

Form A

This test consists of 15 statements about how to reduce stress. Put a check to show whether you think each statement is TRUE or FALSE. If you don't know whether a statement is true or false, put a check under DON'T KNOW.

True	False	Don't Know	
( )	( )	( )	1. People should try to make plans if they are bored.
( )	( )	( )	2. People usually feel more stress if they talk to others who have similar problems.
( )	( )	( )	3. People who have too many things to do should save the most important things for last.
( )	( )	( )	4. Eating a balanced diet is important when a person is feeling stress.
( )	( )	( )	5. One way to lower stress is to avoid unnecessary changes.
( )	( )	( )	6. Exercise helps people lower their stress if they push themselves as hard as they can.
( )	( )	( )	7. A person should try to put up with a situation if nothing can be done to change it.
( )	( )	( )	8. Many people can lower their stress by making a plan of action and following it.
( )	( )	( )	9. Many people can lower their stress by talking about their feelings with friends.
( )	( )	( )	10. Jogging helps many people lower their stress.
( )	( )	( )	11. People can avoid all stressful situations if they want to.
( )	( )	( )	12. A person meditates by thinking about several things at once.
( )	( )	( )	13. People can force themselves to relax.
( )	( )	( )	14. Thinking about the good things in life often helps to lower stress.
( )	( )	( )	15. A person breathes faster during relaxation.

WAYS TO LOWER STRESS

Form B

This test consists of 15 statements about how to reduce stress. Put a check to show whether you think each statement is TRUE or FALSE. If you don't know whether a statement is true or false, put a check under DON'T KNOW.

True	False	Don't Know	
( )	( )	( )	1. Many people can lower their stress by having good friends.
( )	( )	( )	2. Taking deep breaths helps a person relax.
( )	( )	( )	3. People with too much to do can lower their stress by breaking down long jobs into small parts.
( )	( )	( )	4. People can learn ways to lower their stress.
( )	( )	( )	5. Exercise helps many people lower their stress.
( )	( )	( )	6. The heart beats faster when a person is relaxed.
( )	( )	( )	7. Expecting everyone to be perfect helps to lower a person's stress.
( )	( )	( )	8. Relaxation is the opposite of what normally happens to people under stress.
( )	( )	( )	9. People should have more caffeine when they are nervous.
( )	( )	( )	10. Making day-to-day personal schedules of activities increases stress.
( )	( )	( )	11. It is helpful for people to learn which situations cause them to feel stress.
( )	( )	( )	12. To lower their stress, people should work on difficult jobs without taking any breaks.
( )	( )	( )	13. Many people can lower their stress by thinking through how to handle problems.
( )	( )	( )	14. People who get more information about something that worries them usually feel more stress.
( )	( )	( )	15. All people should lower their stress in the same way.

APPROPRIATE RESPONSES TO STRESS

(FORMS A & B)

This skill measure assesses participants' ability to respond appropriately to stressful situations. This measure is appropriate for adults.

PURPOSE

Information regarding participants' ability to respond appropriately to stressful situations may be useful for the following reasons:

- Administration of this measure at the beginning of the program may provide needs assessment information. For example, the results may be used to assess how participants respond prior to program participation. Decisions about how to allocate instructional time can then be made based on the prior skills of participants.
- When the measure is administered prior to and following a program, it is possible to evaluate growth in participants' skill level.

PROCEDURES

Because the equidifficulty of the forms has not been established, it is best not to give all participants Form A as a pretest and Form B as a posttest. Instead, choose either of the following methods.

- Review Forms A and B and select one. Give all participants the selected form both before and after the program. Alternatively, select 15 items from the two forms and construct a measure most consistent with your program emphasis. Then administer the "new" form both before and after the program.
- Give Form A to half of the incoming participants and Form B to the remaining half. To distribute the forms randomly, order them "ABABAB" and hand them out. Following the program, give each participant the form not previously taken. For example, if a participant was given Form B before the program, then that participant should be given Form A following the program. This approach eliminates the possibility that examinees will remember how they answered each item on the pretest.

SCORING AND ANALYSIS

The correct answer keys for the two forms are provided below:

Item No.	Form A	Form B
1	D	C
2	B	D
3	D	C
4	B	B
5	A	C
6	C	D
7	C	C
8	D	B
9	B	B
10	A	C
11	C	D
12	D	B
13	B	D
14	A	B
15	A	C

The measures should be scored by counting the number of correct answers for each participant. Blank items should be scored as incorrect. Count the number of correct answers across participants. The mean number of correct answers and the standard deviation can be calculated to summarize participant performance on the measure. Means and standard deviations from before and after the program can be compared to determine changes in participants' skill.

APPROPRIATE RESPONSES TO STRESS

Form A

This test presents descriptions of individuals who are in stressful situations. These people want to reduce their stress. Read each item. Circle the letter of the appropriate action for the person to take to reduce the stress. If there is no choice presented that is appropriate, circle choice D, "None of the above."

1. Last week Ray got divorced after being married for ten years. An appropriate way for Ray to reduce his stress would be to:
   - A. Move to a new city to start a new life.
   - B. Spend more time drinking at his neighborhood bar.
   - C. Stop seeing any friends that he and his wife had in common.
   - D. None of the above.

2. Martha has many chores that must be finished by the end of the day. Martha's friend, Cheryl, calls up Martha to ask for help painting her living room that day. Martha feels that she can't help Cheryl and finish her own work as well. An appropriate way for Martha to reduce her stress would be to:
   - A. Grudgingly help Cheryl paint but try to get it done as quickly as possible.
   - B. Explain to Cheryl that she can't help her and continue working on her own chores.
   - C. Invite Cheryl to go out shopping with her so they both can get their minds off their work.
   - D. None of the above.

3. Dave is flying out of state for a business trip and is terrified of flying in an airplane. An appropriate way for Dave to reduce his stress would be to:
   A. Drink a few glasses of wine before the flight.
   B. Think about how fast the plane is flying.
   C. Get to the airport late so that he doesn't have as much time to worry.
   D. None of the above.

4. Steve is very busy typing when a co-worker asks Steve to help her with her typing. Steve is a bit annoyed by her request. An appropriate way for Steve to reduce his stress would be to:
   A. Help her with her typing but honestly express annoyance and ask that she not request help again.
   B. Explain that he is too busy to do her typing and finish his own work.
   C. Help her with her typing, but tell her that he doesn't think the boss would approve.
   D. None of the above.

5. Roberto was called into his supervisor's office and told that the company must lay off some employees. Roberto will be laid off in two months. An appropriate way for Roberto to reduce his stress would be to:
   A. Get some information about different job options.
   B. Avoid the other employees who are being laid off.
   C. Show the supervisor how he feels by quitting on the spot.
   D. None of the above.

6. Liz is going through a busy time at work. She has several projects due at the same time. Liz is anxious because she doesn't think she will be able to complete everything on time. An appropriate way for Liz to reduce her stress would be to:
   A. Plan to avoid breaks and to work through lunch hours in order to finish the projects.
   B. Work rapidly without worrying about any of the individual deadlines, but concentrate on getting everything finished at the same time.
   C. Set up a schedule and work on the most important project first.
   D. None of the above.

7. Gary is concerned that the quality of his work is not good enough, even though all of the people he works with tell him he's doing a good job. An appropriate way for Gary to reduce his stress would be to:

   A. Make further efforts to improve the quality of his work.

   B. Drink a few beers at lunch to help him relax at work.

   C. Focus on the positive qualities of his work.

   D. None of the above.

8. Stan sits in traffic for an hour every day on the way to work. An appropriate way for Stan to reduce his stress would be to:

   A. Bring a container of coffee to drink in the car.

   B. Turn up the volume on the radio in his car.

   C. Complain about the traffic to the people at work.

   D. None of the above.

9. Shelly works in the ticket booth at a movie theatre. She has to stay in the booth while the movie is being shown, even if there are no people waiting to buy tickets. An appropriate way for Shelley to reduce her stress would be to:

   A. Take some food to nibble on during work.

   B. Ask her boss if she can read a book when no one is in line.

   C. Bring a soft pillow for her chair.

   D. None of the above.

10. Dave is planning to go on a rafting trip next month, and has just been told that his trip has been cancelled. The trip was arranged by a travel agent who was recommended by a friend. An appropriate way for Dave to reduce his stress would be to:

   A. Plan another vacation for the same time period.

   B. Spend his vacation at home and find a book about river rafting.

   C. Complain to his friend about his recommendation.

   D. None of the above.

11. Maria has four final exams and only two days left to study for them. An appropriate way for Maria to reduce her stress would be to:
    A. Take her mind off her own tests by helping a friend study.
    B. Pick the hardest course and spend most of her time studying for that exam.
    C. Set up a schedule so that she has some time to study for each test.
    D. None of the above.

12. Greg lives across from an all night gas station and is disturbed by the noise from the cars. An appropriate way for Greg to reduce his stress would be to:
    A. Turn up his stereo to block out the noise.
    B. Take a sleeping pill to help get to sleep.
    C. Stay up later so that he can fall asleep more easily.
    D. None of the above.

13. Tom recently bought a new business and is working seven days a week to keep it going. An appropriate way for Tom to reduce his stress would be:
    A. Close the business for several days and go on a vacation.
    B. Set aside some time each week to exercise.
    C. Skip lunch so he can close the business earlier each day.
    D. None of the above.

14. Melanie and her son Mark have just had an argument about the trouble Mark is getting into at school. An appropriate way for Melanie to reduce her stress would be to:
    A. Talk about the situation with one of the counselors at school.
    B. Have a counselor tell Mark he will be suspended, even if it's not true.
    C. Think about what she should have done in the past to help Mark with school.
    D. None of the above.

15. Joyce must speak to a large group of people. She is well-prepared to give the speech. However, she keeps remembering another time when she gave a speech and forgot what she was supposed to say. An appropriate way for Joyce to reduce her stress would be to:

    A. Set aside some time to sit quietly before the speech.

    B. Look directly at the audience while she gives her speech.

    C. Keep her hands busy while she gives the speech.

    D. None of the above.

APPROPRIATE RESPONSES TO STRESS

Form B

This test presents descriptions of individuals who are in stressful situations. These people want to reduce their stress. Read each item. Circle the letter of the appropriate action for the person to take to reduce the stress. If there is no choice presented that is appropriate, circle choice D, "None of the above."

1. Valerie has just taken another job in a different city. She's feeling overwhelmed with all the new things she's encountering. An appropriate way for Valerie to reduce her stress would be to:

   A. Change her hairstyle and way of dressing to reflect her new image.

   B. Take on a lot of projects at work to keep herself busy.

   C. Establish a suitable daily schedule soon after she arrives.

   D. None of the above.

2. John is in a noisy office and is trying to concentrate on his work. An appropriate way for John to reduce his stress would be to:

   A. Skip lunch and work during lunch when the office is quieter.

   B. Straighten up his office area.

   C. Wear more comfortable clothes to work.

   D. None of the above.

3. Barbara's husband has started a new job and is taking many out-of-town business trips. Barbara is bored because she has more time on her hands than she's used to having. An appropriate way for Barbara to reduce her stress would be to:
   - A. Ask her husband to look for another job.
   - B. Talk to her husband's boss about reducing the frequent trips.
   - C. Get involved in an activity to fill the time.
   - D. None of the above.

4. Bill has just found out that his mother is seriously ill. He is very worried about her. An appropriate way for Bill to reduce his stress would be to:
   - A. Tell the doctor to spend more time with his mother.
   - B. Talk to his family about his concerns about his mother's health.
   - C. Take a tranquilizer whenever he feels himself getting very upset.
   - D. None of the above.

5. Rod is worried because he and his family are in financial trouble. He is unable to pay all of the monthly bills and is slipping further into debt. An appropriate way for Rod to reduce his stress would be to:
   - A. Pay those bills that he can afford and forget about the rest for awhile.
   - B. Not mention the situation to his family until it's absolutely necessary.
   - C. Set up payment schedules with the different bill collectors.
   - D. None of the above.

6. Nancy drives home on a busy, crowded freeway. An appropriate way for Nancy to reduce her stress would be to:
   - A. Think about all the things she could be doing with the time she spends on the freeway.
   - B. Try to take the same route home whenever possible.
   - C. Eat something while she is driving to keep her mind off the traffic.
   - D. None of the above.

7. Jeff missed out on a promotion at his office because he didn't have the skills for the higher position. An appropriate way for Jeff to reduce his stress would be to:
   A. Continue working in his current position but with less effort.
   B. Be friendly to the person who did get the job.
   C. Talk to his boss about ways he can improve his skills.
   D. None of the above.

8. Phil is feeling nervous because he and his wife have just recently moved to a new city. An appropriate way for Phil to reduce his stress would be to:
   A. Spend some time drinking in a neighborhood bar.
   B. Buy some guide books to learn about the city.
   C. Go out of town on a vacation with his wife.
   D. None of the above.

9. Sharon works on an assembly line where she watches metal fittings go by all day long. An appropriate way for Sharon to reduce her stress would be to:
   A. Put up a poster near where she works on the assembly line.
   B. Ask her boss if she can listen to a radio as she works.
   C. See if she can work through lunch so that she can finish her work as quickly as possible.
   D. None of the above.

10. Carmela had been planning on taking a week off from work. Now her boss tells Carmela that it is impossible for her to have the vacation time she had planned. An appropriate way for Carmela to reduce her stress would be to:
   A. Say she will switch jobs unless she can take her vacation as planned.
   B. Use the opportunity to ask for a raise because she didn't get her vacation time.
   C. Tell her boss that she's disappointed and make plans for her rescheduled vacation.
   D. None of the above.

11. Rosalie is moving to a new apartment next weekend. She has to pack all her things and clean her old apartment in two days. An appropriate way for Rosalie to reduce her stress would be to:
    A. Maintain her normal routine, and stay up late to do her packing.
    B. Drink coffee so she has the energy she needs for her move.
    C. Avoid all her friends until she is settled in her new place.
    D. None of the above.

12. Gwen is upset because she has had several arguments with her mother. Gwen wants her mother to move into a nursing home. Her mother refuses to live in a nursing home and wants to continue living alone in an apartment. An appropriate way for Gwen to reduce her stress would be to:
    A. Continue trying to convince her mother to live in a nursing home.
    B. Talk to her mother about other living arrangements that might be suitable.
    C. Show her mother how upset she is by not contacting her for a few weeks.
    D. None of the above.

13. Ginger has a very long paper to write for a class she is taking. She is nervous because she can't seem to get started on the paper. An appropriate way for Ginger to reduce her stress would be to:
    A. Think about a way to get her teacher to postpone the due date.
    B. Not show up for class the day the paper is due.
    C. Think about how much work is involved in writing the paper.
    D. None of the above.

14. Peg's doctor told her that she couldn't play in an upcoming tennis tournament because she pulled a muscle in her leg. An appropriate way for Peg to reduce her stress would be to:
    A. Wrap her leg in a bandage and play in the tournament anyway.
    B. Stay home from the tournament and do something she enjoys.
    C. Go out drinking with her friends to have a good time.
    D. None of the above.

15. Neil is worried that he won't do well answering questions at his job interview, even though he is qualified for the job. An appropriate way for Neil to reduce his stress would be to:

    A. Think about how upset his wife will be if he doesn't get the job.

    B. Stay up late the night before the interview to prepare something to say.

    C. Take one of his regular morning jogs before the interview.

    D. None of the above.

HOW TO LOWER STRESS

(FORM A & B)

This skill measure assesses participants' ability to respond appropriately to stressful situations. This measure is appropriate for adolescents and preadolescents.

PURPOSE

Information regarding participants' ability to respond appropriately to stressful situations may be useful for the following reasons:

- Administration of this measure at the beginning of the program may provide needs assessment information. For example, the results may be used to assess how participants respond prior to program participation. Decisions about how to allocate instructional time can then be made based on the prior skills of participants.
- When the measure is administered prior to and following a program, it is possible to evaluate growth in participants' skill level.

PROCEDURES

Because the equidifficulty of the forms has not been established, it is best not to give all participants Form A as a pretest and Form B as a posttest. Instead, choose either of the following methods.

- Review Forms A and B and select one. Give all participants the selected form both before and after the program. Alternatively, select 10 items from the two forms and construct a measure most consistent with your program emphasis. Then administer the "new" form both before and after the program.
- Give Form A to half of the incoming participants and Form B to the remaining half. To distribute the forms randomly, order them "ABABAB" and hand them out. Following the program, give each participant the form not previously taken. For example, if a participant was given Form B before the program, then that participant should be given Form A following the program. This approach eliminates the possibility that examinees will remember how they answered each item from the pretest.

SCORING AND ANALYSIS

The correct answer keys for the two forms are provided below:

Item No.	Form A	Form B
1	C	B
2	B	A
3	B	B
4	A	C
5	C	B
6	A	B
7	A	C
8	B	B
9	B	B
10	C	C

The measures should be scored by counting the number of correct answers for each participant. Blank items should be scored as incorrect. Count the number of correct answers across participants. The mean number of correct answers and the standard deviation can be calculated to summarize participant performance on the measure. Means and standard deviations from before and after the program can be compared to determine changes in participants' skill.

HOW TO LOWER STRESS

Form A

This test is about young people who feel stress or are nervous because of what is happening to them. These people want to lower their stress. Read each description. Circle the letter of the *best* action for the person to take to lower the stress.

1. Jan wants to go to a party with her older sister. She knows her father won't let her go because most of the people at the party will be a lot older than Jan. To lower her stress Jan should:

   A. Go to the party without telling her father.

   B. Ask her sister to tell her father that most of the kids will be Jan's age.

   C. Ask her dad if she can go to the movies instead.

2. Derrick just got his report card, and his grades are not good. He is afraid his parents will be upset, even though they are usually very understanding. To lower his stress Derrick should:

   A. Plan to stay up late during the next grading period to study more.

   B. Think about similar situations in the past in which his parents were understanding.

   C. Do some jobs around the house to make up for his grades.

3. Bill is feeling nervous because he is surrounded by people at a very crowded dance. To lower his stress Bill should:

   A. Get over to the food table to eat something.

   B. Go outside and take a short walk.

   C. Stay in the middle of the crowd.

4. Stacey is completing the sixth grade soon and will be going to a new school for seventh grade. To lower her stress Stacey should:

   A. Visit the new school to get familiar with it before classes start.

   B. Think about how much she likes her sixth grade class.

   C. Ask her parents if the family can take a vacation together before school starts.

5. Joyce has practiced a speech and has memorized it well. She still thinks that she will forget what she's supposed to say when she gives it to her class. To lower her stress Joyce should:

   A. Try not to look at anyone while she gives the speech.

   B. Think about how upset the teacher will be if she forgets her speech.

   C. Tell herself that she knows her speech and will do well.

6. Jamal is feeling uncomfortable because his mother and father have just had a big fight. To lower his stress Jamal should:

   A. Talk to his older brother about the fight.

   B. Think about whether he was the cause of the fight.

   C. Not do his chores to show how upset he is.

7. Evelyn is trying to figure out how to run a computer program, but the directions are very difficult. To lower her stress Evelyn should:

   A. Take a break and see if the directions make more sense when she gets back.

   B. Keep working on the program through the lunch period.

   C. Tell the people around her to be quieter so that she can finish her program.

8. Sean's school is selling candy bars to earn money. Sean must sell 3 boxes of candy bars. He has waited until the last 3 days to start selling them. To lower his stress Sean should:

   A. Buy one of the boxes of candy bars to share with his friends.

   B. Make a plan to try to sell one box of candy bars each day.

   C. Decide that it is too late to sell any so he will ask his parents to buy them.

9. Brenda enjoys being with her best friend. This year she had hoped to be in the same class as her friend, but they were put in different classrooms. To lower her stress Brenda should:

   A. Use her lunch hour to talk with her friend instead of eating.

   B. Plan some after-school activities to do with her friend.

   C. Think about all the fun times she and her friend have had together.

10. Kevin was given a note from his teacher telling him to go to the principal's office later that same day. He is afraid he is in trouble, but he knows he hasn't done anything wrong. To lower his stress Kevin should:

    A. Try to think of something he might have done wrong in the past.

    B. Try to figure out what to tell his parents if he is in trouble.

    C. Tell himself that he hasn't done anything wrong and that he has no reason to be frightened.

HOW TO LOWER STRESS

Form B

This test is about young people who feel stress or are nervous because of what is happening to them. These people want to lower their stress. Read each description. Circle the letter of the *best* action for the person to take to lower the stress.

1. Darnell is supposed to go to the hospital with his parents to visit his grandmother. Darnell is afraid of hospitals. Although he would like to see his grandmother, he doesn't want to go to the hospital. To lower his stress Darnell should:

   A. Tell his parents that he will go to the hospital the next time they visit, but not this time.

   B. Talk to his parents about how frightened he is.

   C. Go with his parents, hoping that his fear will go away at the hospital.

2. Mark is trying to finish this week's history lesson, but the lesson is very long. To lower his stress Mark should:

   A. Divide the lesson into smaller parts and work on each part at a different time.

   B. Stay up very late one night to try to finish the lesson.

   C. Study for his other classes before starting his history lesson.

3. Bridgette, who has just finished seventh grade, has nothing to do during summer vacation and is very bored. To lower her stress Bridgette should:

   A. Stay in the house and take it easy.

   B. Try to make some new friends during the summer.

   C. Wait around and see if her friends call her.

4. Lisa is trying out for the school play. She has practiced reading the parts she is interested in and knows them well, but she is frightened that she will stumble over them. To lower her stress Lisa should:

   A. Plan on trying out for the next play and forget about being in this one.

   B. Get something to eat from a school candy machine.

   C. Sit in a quiet place before she has to read her lines.

5. Lewis just heard his parents yelling at each other. They didn't know he was in the next room. To lower his stress Lewis should:

   A. Stay in the room until he is sure that his parents are gone.

   B. Talk to his parents individually about what happened.

   C. Not say anything about the fight to his parents to keep them from getting more angry.

6. Melissa is trying to solve her algebra problems but is getting more and more confused. To lower her stress Melissa should:

   A. Skip lunch to keep working on the project.

   B. Take a break and try again when she gets back.

   C. Read the book over and over until she figures them out.

7. Arthur is worried that he will not pass tomorrow's geography test, even though he has studied what he needs to know. To lower his stress Arthur should:

   A. Stay up late to study more.

   B. Think about what might happen if he fails the test.

   C. Go outside and play basketball with his brother.

8. Jason has been told that he did not get chosen for the school soccer team. To lower his stress Jason should:

   A. Avoid the kids who did make the team.

   B. Ask the coach if there is a city team that he could join.

   C. Tell the coach that he had been thinking of quitting anyway.

9. Rosa and her family have just moved. Rosa will be starting at a new school soon. To lower her stress Rosa should:

    A. Stop writing to friends that remind her of her old school.

    B. Visit her new school to learn where things are.

    C. Think about how much she misses her old classmates.

10. Jody wants to go see the fireworks show on the Fourth of July. Her mother will not let her go out because Jody has just gotten over a bad cold. To lower her stress Jody should:

    A. Keep asking her mother if she can go watch the fireworks show.

    B. Stay in her room all evening to show her mom how angry she is.

    C. Ask her mother if she may make a special dinner at home that night.

HOW WILL YOU FEEL?

This affective measure asks participants to indicate the importance of 12 factors that influence their quality of life. After weighing the importance of each factor, participants are asked to predict how satisfied they expect to be in one year. This measure is appropriate for adults.

If this measure seems useful, you might also want to consider the **Life Satisfaction Inventory** (LSI), which is another affective measure assessing participants' perceptions about their quality of life. The LSI measure asks about **current** satisfaction levels rather than **expected** satisfaction levels.

PURPOSE

Information about participants' expected life satisfaction may be useful for the following reasons:

- Administration of this measure at the beginning of the program may provide needs assessment information. For example, results of this measure may show that participants have low expectations about their future quality of life, thus emphasizing their need for instruction in stress management techniques. If participants feel that they are better able to handle stress, their expected life satisfaction may also increase.
- When this measure is administered prior to and following a program, it is possible to evaluate changes in participants' expectation of their future quality of life in twelve distinctive areas.

PROCEDURES

This instrument can be administered both at the beginning and at the end of the program. However, handbook users should be alert to concerns regarding the potential reactivity of affective measures. A measure is considered *reactive* if the experience of completing the measure prior to the program causes participants to react differently to the program. Handbook users should, therefore, carefully review each affective measure that they wish to use to determine its potential for making participants unduly sensitive to aspects of the program. If a measure is determined to be reactive, then program personnel should *not* administer that measure to *all* participants as a pretest and posttest. Instead, the measure could be administered to half of the program participants prior to program participation to determine participants' pre-program status. The measure could then be administered to the other half of the participants after program participation to assess participants' post-program status.

SCORING AND ANALYSIS

This inventory can be scored in two ways. One procedure relies on the EXPECTED SATISFACTION responses only, providing an easily obtained group estimate of participants' expected life satisfaction in one year.

A second procedure combines the IMPORTANCE responses with the EXPECTED SATISFACTION responses. This method provides a weighted assessment of expected life satisfaction based on the IMPORTANCE rating.

Procedure 1 – Expected Satisfaction Responses Only

1. Add the point values of all the responses in Column 2 for all participants. (Ignore blanks; that is, do not count them when you count the number of responses.)
2. Divide this total by the total number of responses.

EXAMPLE: Imagine that there are 10 program participants. First, add up all the numbers in Column 2 for all participants. Let's say the total is 190. Divide this total by the total number of responses from all participants. We will use 110 responses for this example. (The total possible number of responses is 120 if all participants left no blanks in Column 2.) Then divide 190 by 110 responses to get an average score of about 1.7.

The maximum total EXPECTED SATISFACTION score is 3.0; the minimum score is 1.0. Scores near 3.0 indicate that participants as a group expect to be very satisfied with their quality of life. Scores near 1.0 indicate that participants anticipate being dissatisfied.

Procedure 2 – Expected Satisfaction Weighted by Importance Responses

1. Count the number of items rated "very important" (3) in Column 1.
2. Total the EXPECTED SATISFACTION ratings in Column 2 for the items counted in step 1.
3. Divide the total in step 2 by the total in step 1.

EXAMPLE: For the same 10 participants used in the example above, count the number of items that they rated as "very important" in Column 1. Of the 120 responses possible, let's say there were 43 responses marked with a 3. For those same 43 responses, move over to Column 2 and add up the expected satisfaction ratings given to them. Let's assume a total of 116. Then, divide 116 by 43 for an EXPECTED SATISFACTION average score of 2.7 which is weighted by participants' "very important" rating.

Again, the maximum attainable score is 3.0; the minimum is 1.0. Scores close to 3.0 indicate that participants expect to be very satisfied with those factors rated "very important."

This same procedure can also be followed to determine participants' expectation for those items rated "somewhat important."

NOTES:

(1) If both this measure and the **Life Satisfaction Inventory** are used, a comparison can be made between participants' current life satisfaction and their expected life satisfaction.

(2) Specific factors of interest can be isolated for scoring according to the directions above. For example, program personnel might want to examine participants' expectations for the factor "ability to handle problems."

HOW WILL YOU FEEL?

Listed below are several factors that might influence your expectations about the quality of your life in the near future.

In the IMPORTANCE column, Column 1, indicate how important each factor is to you by using the following scale:

1 = Unimportant
2 = Somewhat important
3 = Very important

In the EXPECTED SATISFACTION IN ONE YEAR column, Column 2, indicate how satisfied you expect to be with each factor *one year from now* by using the following scale:

1 = Expect to be *dissatisfied*
2 = Expect to be *somewhat satisfied*
3 = Expect to be *very satisfied*

	Column 1	**Column 2**
FACTOR	**IMPORTANCE TO QUALITY OF LIFE**	**EXPECTED SATISFACTION IN ONE YEAR**
Your health		
Your physical appearance		
Your occupation (e.g., job, school, homemaking)		
Your ability to get along with people		
Your relationships with friends		
Your relationships with family		
Your sexual relationships		
Your spiritual life		
Your ability to handle problems		
Your financial condition		
Your leisure-time activities (e.g., hobbies, volunteer work, exercise program)		
Your success in achieving personal goals		

KEEPING YOUR COOL

This affective measure assesses participants' perceived ability to manage stress. This measure is appropriate for adults.

PURPOSE

Information about participants' self-efficacy in being able to manage stress may be useful for the following reasons:

- Administration of this measure at the beginning of the program may provide needs assessment information. For example, results of this measure may indicate that participants have a low perceived ability to manage stress and therefore may need training in this area.
- When this measure is administered prior to and following a program, it is possible to evaluate growth in participants' self-efficacy in coping with stress.

PROCEDURES

This instrument can be administered both at the beginning and at the end of the program. However, handbook users should be alert to concerns regarding the potential reactivity of affective measures. A measure is considered *reactive* if the experience of completing the measure prior to the program causes participants to react differently to the program. Handbook users should, therefore, carefully review each affective measure that they wish to use to determine its potential for making participants unduly sensitive to aspects of the program. If a measure is determined to be reactive, then program personnel should *not* administer that measure to *all* participants as a pretest and posttest. Instead, the measure could be administered to half of the program participants prior to program participation to determine participants' pre-program status. The measure could then be administered to the other half of the participants after program participation to assess participants' post-program status.

SCORING AND ANALYSIS

Point values are assigned to responses as follows:

Definitely Yes = 5
Probably Yes = 4
Maybe = 3
Probably No = 2
Definitely No = 1

This inventory can be scored by adding the point values of all responses across participants and dividing this total by the number of responses. Blank items should not be counted in the number of responses. The maximum attainable score of 5 points indicates a strong perceived ability to manage stress across a variety of stressful situations. A minimum score of 1 indicates a lack of perceived ability to manage stress across a variety of stressful situations.

KEEPING YOUR COOL

This survey describes various situations when people might feel stress. Put a check to show how sure you are that you could cope with each situation. *By coping we mean reducing the stress you experience in the situation.*

Could you cope with the situation if . . .	**Definitely Yes**	**Probably Yes**	**Maybe**	**Probably No**	**Definitely No**
1. you are trying to concentrate, but you are constantly interrupted?	( )	( )	( )	( )	( )
2. you have to do a very boring task?	( )	( )	( )	( )	( )
3. you have been thinking about someone who hurt you in the past?	( )	( )	( )	( )	( )
4. you lose your job?	( )	( )	( )	( )	( )
5. you are stuck in heavy traffic?	( )	( )	( )	( )	( )
6. you lose something that is important to you?	( )	( )	( )	( )	( )
7. someone you are close to is angry with you?	( )	( )	( )	( )	( )
8. you have taken on more than you can do?	( )	( )	( )	( )	( )
9. someone in your family is very ill?	( )	( )	( )	( )	( )
10. you are late for an important appointment?	( )	( )	( )	( )	( )

Could you cope with the situation if . . .	**Definitely Yes**	**Probably Yes**	**Maybe**	**Probably No**	**Definitely No**
11. your closest friend has moved away and you feel lonely?	( )	( )	( )	( )	( )
12. you find out that you have a serious illness?	( )	( )	( )	( )	( )
13. you saw someone being robbed and keep thinking that it could happen to you?	( )	( )	( )	( )	( )
14. people keep asking you to do things you don't have time to do?	( )	( )	( )	( )	( )
15. a close friend of yours dies?	( )	( )	( )	( )	( )
16. you are moving to a new city?	( )	( )	( )	( )	( )
17. no matter how hard you have tried, you haven't been able to finish all your work?	( )	( )	( )	( )	( )
18. you have serious money problems?	( )	( )	( )	( )	( )
19. your relationship with a spouse or loved one ends?	( )	( )	( )	( )	( )
20. you just realized you have lost something that you need right away?	( )	( )	( )	( )	( )

COULD YOU DEAL WITH IT?

This affective measure assesses participants' ability to manage stress. This measure is appropriate for adolescents and preadolescents.

PURPOSE

Information about participants' self-efficacy in being able to manage stress may be useful for the following reasons:

- Administration of this measure at the beginning of the program may provide needs assessment information. For example, results of this measure may indicate that participants have a low perceived ability to manage stress and therefore may need training in this area.
- When this measure is administered prior to and following a program, it is possible to evaluate growth in participants' self-efficacy in coping with stress.

PROCEDURES

This instrument can be administered both at the beginning and at the end of the program. However, handbook users should be alert to concerns regarding the potential reactivity of affective measures. A measure is considered *reactive* if the experience of completing the measure prior to the program causes participants to react differently to the program. Handbook users should, therefore, carefully review each affective measure that they wish to use to determine its potential for making participants unduly sensitive to aspects of the program. If a measure is determined to be reactive, then program personnel should *not* administer that measure to *all* participants as a pretest and posttest. Instead, the measure could be administered to half of the program participants prior to program participation to determine participants' pre-program status. The measure could then be administered to the other half of the participants after program participation to assess participants' post-program status.

SCORING AND ANALYSIS

Point values are assigned to responses as follows:

Definitely Yes = 5
Probably Yes = 4
Maybe = 3
Probably No = 2
Definitely No = 1

This inventory can be scored by adding the point values of all responses across participants and dividing this total by the number of responses. Blank items should not be counted in the number of responses. The maximum attainable score of 5 points indicates a strong perceived ability to manage stress across a variety of stressful situations. A minimum score of 1 indicates a lack of perceived ability to manage stress across a variety of stressful situations.

COULD YOU DEAL WITH IT?

The questions below ask about times when you might feel upset or nervous. Put a check to show how sure you are that you could deal with your feelings in each situation.

Could you deal with it if . . .	**Definitely Yes**	**Probably Yes**	**Maybe**	**Probably No**	**Definitely No**
1. you had to help at home rather than be with your friends?	( )	( )	( )	( )	( )
2. you got a poor grade on a test?	( )	( )	( )	( )	( )
3. you kept getting more things to do and you were already busy?	( )	( )	( )	( )	( )
4. you didn't understand a lesson at school?	( )	( )	( )	( )	( )
5. you moved and didn't know anyone at your new school?	( )	( )	( )	( )	( )
6. you didn't have enough time to answer all the questions on a test?	( )	( )	( )	( )	( )
7. your parents were angry with you?	( )	( )	( )	( )	( )
8. someone in your family was very sick?	( )	( )	( )	( )	( )
9. you thought that no one in your class liked you?	( )	( )	( )	( )	( )
10. you were home alone and had nothing to do?	( )	( )	( )	( )	( )

Could you deal with it if . . .	Definitely Yes	Probably Yes	Maybe	Probably No	Definitely No
11. your family expected you to do too much?	( )	( )	( )	( )	( )
12. your closest friend moved away and you felt lonely?	( )	( )	( )	( )	( )
13. you couldn't join a club or team you wanted to?	( )	( )	( )	( )	( )
14. you lost something important?	( )	( )	( )	( )	( )
15. you had to sit quietly through something that was boring?	( )	( )	( )	( )	( )
16. you had too much homework to do in a short time?	( )	( )	( )	( )	( )
17. your parents were angry with each other?	( )	( )	( )	( )	( )
18. you didn't have enough money to spend?	( )	( )	( )	( )	( )

HOW WILL YOU COPE?

This affective measure assesses participants' intention to use stress management techniques. Both positive and negative techniques for managing stress are included in the measure. This measure is appropriate for adults and adolescents.

If this measure seems useful, you might also want to consider administering the **Stress Management Checklist**, which is a behavior measure assessing participants' **actual** use of stress management techniques.

PURPOSE

Information about participants' intention to use stress management techniques may be useful for the following reasons:

- Administration of this measure at the beginning of the program may provide needs assessment information. For example, results of this measure may show weak participant intention to use positive stress management techniques and thus indicate a need for instruction in the desirability of those techniques.
- When this measure is administered prior to and following a program, it is possible to evaluate changes in participants' intention to use positive stress management techniques.

PROCEDURES

This instrument can be administered both at the beginning and at the end of the program. However, handbook users should be alert to concerns regarding the potential reactivity of affective measures. A measure is considered *reactive* if the experience of completing the measure prior to the program causes participants to react differently to the program. Handbook users should, therefore, carefully review each affective measure that they wish to use to determine its potential for making participants unduly sensitive to aspects of the program. If a measure is determined to be reactive, then program personnel should *not* administer that measure to *all* participants as a pretest and posttest. Instead, the measure could be administered to half of the program participants prior to program participation to determine participants' pre-program status. The measure could then be administered to the other half of the participants after program participation to assess participants' post-program status.

SCORING AND ANALYSIS

Items 2, 4, 10, 14, 16, 19, 22, 24, and 26 are commonly considered some of the *negative* ways for handling stress. For purposes of scoring, they will be labeled "negative items." The remaining items are *positive* coping techniques. They will be labeled "positive items."

Total Score for Negative Items Marked YES or MAYBE

1. Count the number of negative items that are marked either YES or MAYBE. (Ignore any blank or NO responses.)

2. Divide this total by the number of program participants.

   EXAMPLE: Imagine that there are 10 program participants. First, count all the times that these individuals marked either YES or MAYBE on the negative items (2, 4, 10, 14, 16, 19, 22, 24, and 26). Let's assume the total number of times was 55. Then, divide 55 by 10 participants to get an average score of 5.5.

Scores can range from 0-9 with low scores indicating a group of participants who intend to use few negative coping techniques and high scores indicating the intention to use many negative techniques.

Subtotal Score for Negative Items Marked YES or MAYBE

1. Count only the number of negative items (2, 4, 10, 14, 16, 19, 22, 24, and 26) that are marked YES.
2. Divide this total by the number of times the negative items were marked YES or MAYBE. Multiply this number by 100 to obtain a percentage.

   EXAMPLE: For the same 10 individuals used in the example above, count the number of times they marked YES on the negative items. Let's assume the total was 35. Then, divide by the total number of times the 10 individuals marked either YES or MAYBE on the negative items. This number was already determined to be 55 in the previous example. Thus, divide 35 by 55 to find out, of the negative strategies participants intend to use, what percentage are definitely intended to be used. In this case, 35/55 is about 64%. Thus, of the negative strategies indicated, 64% are definitely intended to be used, and 36% are less likely to be used.

Besides seeing an overall reduction in the number of negative coping strategies intended to be used, program evaluators will hopefully see a decrease in the YES percentage and an increase in the MAYBE percentage when the measure is administered at the beginning and end of the program.

Scoring for Positive Items Marked YES or MAYBE

The positive responses for handling stress can be scored in the same way that the negative responses were handled. However, in this case, because of the larger number of positive items in the instrument, the possible range of scores is from 0-17, with low scores indicating the intention to use few positive coping strategies and high numbers indicating the intention to use many positive strategies. The determination of percentages for the YES and MAYBE columns can also be done with the positive strategies. In the case of positive strategies, it would be desirable to see a switch in the direction of a higher percentage of YES responses being reported.

Note: When dealing with the scoring of positive stress management techniques, program evaluators should not be overly concerned about group scores that do not extend into the upper end of the range. It seems unlikely that even the most skilled positive stress management participants would intend to use all the positive coping strategies. Rather, individual participants may find a limited number of positive strategies that work well for them.

HOW WILL YOU COPE?

Listed below are things that people might do when they feel stress. Think about how you will deal with any problems or stressful situations that you might face in the *near future*. Then put a check to show how likely you are to do each of the following.

When you feel stress in the *near future*, will you . . .

	Yes	Maybe	No
1. tell yourself positive things?	( )	( )	( )
2. drink more coffee?	( )	( )	( )
3. try to figure out exactly why you are upset?	( )	( )	( )
4. eat more?	( )	( )	( )
5. find humor in the situation?	( )	( )	( )
6. use relaxation techniques?	( )	( )	( )
7. think about the positive side of the situation?	( )	( )	( )
8. exercise more?	( )	( )	( )
9. talk about the situation with the people who are involved?	( )	( )	( )
10. smoke more?	( )	( )	( )
11. think through how you will handle the situation?	( )	( )	( )
12. try to get more information about the situation?	( )	( )	( )
13. make a plan of action and follow it?	( )	( )	( )
14. drink more alcohol?	( )	( )	( )
15. accept the situation if nothing can be done to change it?	( )	( )	( )

When you feel stress in the *near future*, will you . . .	**Yes**	**Maybe**	**No**
16. take drugs or non-prescription medications?	( )	( )	( )
17. take things one step at a time?	( )	( )	( )
18. talk about your feelings with family or friends?	( )	( )	( )
19. take your frustration out on other people?	( )	( )	( )
20. start learning new skills to help you deal with the situation?	( )	( )	( )
21. get advice from someone who can help you?	( )	( )	( )
22. take the blame for problems that aren't your fault?	( )	( )	( )
23. do other things to give your mind a rest from the situation?	( )	( )	( )
24. keep your feelings to yourself?	( )	( )	( )
25. consider several alternatives for handling the situation?	( )	( )	( )
26. sleep more?	( )	( )	( )

WHAT WILL YOU DO?

This affective measure assesses participants' intention to use stress management techniques. Both positive and negative techniques for managing stress are included in the measure. This measure is appropriate for adolescents and preadolescents.

If this measure seems useful, you might also want to consider administering the **How You Deal with Your Stress** measure, which is a behavior measure assessing participants' **actual** use of stress management techniques.

PURPOSE

Information about participants' intention to use stress management techniques may be useful for the following reasons:

- Administration of this measure at the beginning of the program may provide needs assessment information. For example, results of this measure may show weak participant intention to use positive stress management techniques and thus indicate a need for instruction in the desirability of those techniques.
- When this measure is administered prior to and following a program, it is possible to evaluate changes in participants' intention to use positive stress management techniques.

PROCEDURES

This instrument can be administered both at the beginning and at the end of the program. However, handbook users should be alert to concerns regarding the potential reactivity of affective measures. A measure is considered *reactive* if the experience of completing the measure prior to the program causes participants to react differently to the program. Handbook users should, therefore, carefully review each affective measure that they wish to use to determine its potential for making participants unduly sensitive to aspects of the program. If a measure is determined to be reactive, then program personnel should *not* administer that measure to *all* participants as a pretest and posttest. Instead, the measure could be administered to half of the program participants prior to program participation to determine participants' pre-program status. The measure could then be administered to the other half of the participants after program participation to assess participants' post-program status.

SCORING AND ANALYSIS

Items 6, 10, 13, 15, 18, and 19 are generally considered some of the *negative* ways for handling stress. For purposes of scoring, they will be labeled "negative items." The remaining items are *positive* coping techniques. They will be labeled "positive items."

Total Score for Negative Items Marked YES or MAYBE

1. Count the number of negative items that are marked as YES or MAYBE. (Ignore any blank or NO responses.)

2. Divide this total by the number of program participants.

   EXAMPLE: Imagine that there are 10 program participants. First, count all the times that these individuals marked either YES or MAYBE on the negative items (6, 10, 13, 15, 18, and 19). Let's assume the total number of times was 32. Then, divide 32 by 10 participants to get an average score of 3.2.

Scores can range from 0-6 with low scores indicating a group of participants who intend to use few negative coping techniques and high scores indicating the intention to use many negative techniques.

Subtotal Score for Negative Items Marked YES or MAYBE

1. Count only the number of negative items (6, 10, 13, 15, 18, and 19) that are marked YES.
2. Divide this total by the number of times the negative items were marked YES or MAYBE. Multiply by number times 100 to obtain a percentage.

   EXAMPLE: For the same 10 individuals used in the example above, count the number of times they marked YES on the negative items. Let's assume the total was 11. Then, divide by the total number of times the 10 individuals marked either YES or MAYBE on the negative items. This number was already determined to be 32 in the previous example. Thus, divide 11 by 32 to find out, of all the negative strategies participants intend to use, what percentage are definitely intended to be used. In this case, 11/32 is about 34%. Thus, of the negative strategies indicated, 34% are definitely intended to be used, and 66% are less likely to be used.

Besides seeing an overall reduction in the number of negative coping strategies intended to be used, program evaluators will hopefully see a decrease in the YES percentage and an increase in the MAYBE percentage when the measure is administered at the beginning and end of the program.

Scoring for Positive Items Marked YES or MAYBE

The positive responses for handling stress can be scored in the same way that the negative responses were handled. However, in this case, because of the larger number of positive items in the instrument, the possible range of scores is from 0-15, with low scores indicating the intention to use few positive coping strategies and high numbers indicating the intention to use many positive strategies. The determination of percentages for the YES and MAYBE columns can also be done with the positive strategies. In the case of positive strategies, it would be desirable to see a switch in the direction of a higher percentage of YES responses being reported.

NOTE: When dealing with the scoring of positive stress management techniques, program evaluators should not be overly concerned about group scores that do not extend into the upper end of the range. It seems unlikely that even the most skilled positive stress management participants would intend to use all the positive coping strategies. Rather, individual participants may find a limited number of positive strategies that work well for them.

WHAT WILL YOU DO?

Listed below are things that people might do when they feel stress. Think about how you will deal with any problems or stressful situations that you might face in the *near future*. Then put a check to show how likely you are to do each of the following.

When you feel stress in the *near future*, will you . . .	**Yes**	**Maybe**	**No**
1. tell yourself good things about your life?	( )	( )	( )
2. try to figure out exactly why you are upset?	( )	( )	( )
3. use relaxation skills?	( )	( )	( )
4. try to see the good side of the situation?	( )	( )	( )
5. exercise more?	( )	( )	( )
6. smoke cigarettes?	( )	( )	( )
7. think about how you will handle the situation?	( )	( )	( )
8. try to get more information about things that worry you?	( )	( )	( )
9. make a plan of action and follow it?	( )	( )	( )
10. have a drink (such as beer or wine)?	( )	( )	( )
11. accept things if nothing can be done about them?	( )	( )	( )
12. do other things for awhile to get your mind off the situation?	( )	( )	( )
13. get high?	( )	( )	( )
14. talk about your feelings with your family?	( )	( )	( )
15. take your anger out on other people?	( )	( )	( )

When you feel stress in the *near future*, will you . . .	**Yes**	**Maybe**	**No**
16. start learning new skills to help you deal with the situation?	( )	( )	( )
17. ask others for help if you need it?	( )	( )	( )
18. take the blame for problems that aren't your fault?	( )	( )	( )
19. keep your feelings to yourself?	( )	( )	( )
20. do other things you like when you can't do what you want?	( )	( )	( )
21. think about some different ways to handle the situation?	( )	( )	( )

PEOPLE IN YOUR LIFE

This affective measure assesses participants' perceived support and assistance from people around them. This measure is appropriate for adults.

PURPOSE

Information about participants' perceived support from other people may be useful for the following reasons:

- Administration of this measure at the beginning of the program may provide needs assessment information. For example, results of this measure may indicate that participants need assistance in strengthening their support network.
- When this measure is administered prior to and following a program, it is possible to evaluate changes in participants' perceptions of their support group.

PROCEDURES

This instrument can be administered both at the beginning and at the end of the program. However, handbook users should be alert to concerns regarding the potential reactivity of affective measures. A measure is considered *reactive* if the experience of completing the measure prior to the program causes participants to react differently to the program. Handbook users should, therefore, carefully review each affective measure that they wish to use to determine its potential for making participants unduly sensitive to aspects of the program. If a measure is determined to be reactive, then program personnel should *not* administer that measure to *all* participants as a pretest and posttest. Instead, the measure could be administered to half of the program participants prior to program participation to determine participants' pre-program status. The measure could then be administered to the other half of the participants after program participation to assess participants' post-program status.

SCORING AND ANALYSIS

Point values are assigned to responses as follows:

Definitely Yes = 5
Probably Yes = 4
Maybe = 3
Probably No = 2
Definitely No = 1

This inventory can be scored by adding the point values of all responses across participants and dividing this total by the number of responses. Blank items should not be counted in the number of responses. The maximum attainable score of 5 points indicates a high level of perceived social support. A minimum score of 1 suggests very weak perceived social support.

PEOPLE IN YOUR LIFE

This survey is about the support and assistance people may receive from others. Put a check to show how sure you are that you receive the kind of support described in each item.

	Definitely Yes	Probably Yes	Maybe	Probably No	Definitely No
1. Are there people you trust to give you advice?	( )	( )	( )	( )	( )
2. Are there people you feel comfortable contacting if you are lonely?	( )	( )	( )	( )	( )
3. Are there people who would go out of their way to give you a ride if you needed one?	( )	( )	( )	( )	( )
4. Are there people who would look after your home if you went away for awhile?	( )	( )	( )	( )	( )
5. Are there people who are willing to criticize you for your own good?	( )	( )	( )	( )	( )
6. Are there people who are proud of your accomplishments?	( )	( )	( )	( )	( )
7. Are there people who would help you move to a new home?	( )	( )	( )	( )	( )
8. Are there people who would lend you money if you needed it?	( )	( )	( )	( )	( )
9. Are there people with whom you share your deepest thoughts and feelings?	( )	( )	( )	( )	( )

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		Definitely Yes	Probably Yes	Maybe	Probably No	Definitely No
10.	Are there people who would help you if you had too much to do?	( )	( )	( )	( )	( )
11.	Are there people you could stay with if you needed to get away for awhile?	( )	( )	( )	( )	( )
12.	Are there people who help you feel good about yourself?	( )	( )	( )	( )	( )
13.	Are there people who care deeply about you?	( )	( )	( )	( )	( )
14.	Are there people you call if you want to go out on the spur of the moment?	( )	( )	( )	( )	( )
15.	Are there people who would run errands for you if you were sick?	( )	( )	( )	( )	( )
16.	Are there people who accept you just the way you are?	( )	( )	( )	( )	( )
17.	Are there people who give you physical affection?	( )	( )	( )	( )	( )
18.	Are there people who are willing to help you make important decisions?	( )	( )	( )	( )	( )
19.	Are there people who help you feel better when you are upset?	( )	( )	( )	( )	( )
20.	Are there people who help you work out personal problems?	( )	( )	( )	( )	( )
21.	Are there people who are supportive of you no matter what?	( )	( )	( )	( )	( )

THE PEOPLE YOU KNOW

This affective measure assesses participants' perceived support and assistance from people around them. This measure is appropriate for adolescents and preadolescents.

PURPOSE

Information about participants' perceived support from other people may be useful for the following reasons:

- Administration of this measure at the beginning of the program may provide needs assessment information. For example, results of this measure may indicate that participants need assistance in strengthening their support network.
- When this measure is administered prior to and following a program, it is possible to evaluate changes in participants' perception of their support group.

PROCEDURES

This instrument can be administered both at the beginning and at the end of the program. However, handbook users should be alert to concerns regarding the potential reactivity of affective measures. A measure is considered *reactive* if the experience of completing the measure prior to the program causes participants to react differently to the program. Handbook users should, therefore, carefully review each affective measure that they wish to use to determine its potential for making participants unduly sensitive to aspects of the program. If a measure is determined to be reactive, then program personnel should *not* administer that measure to *all* participants as a pretest and posttest. Instead, the measure could be administered to half of the program participants prior to program participation to determine participants' pre-program status. The measure could then be administered to the other half of the participants after program participation to assess participants' post-program status.

SCORING AND ANALYSIS

Point values are assigned to responses as follows:

Definitely Yes = 5
Probably Yes = 4
Maybe = 3
Probably No = 2
Definitely No = 1

This inventory can be scored by adding the point values of all responses across participants and dividing this total by the number of responses. Blank items should not be counted in the number of responses. The maximum attainable score of 5 points indicates a high level of perceived social support. A minimum score of 1 suggests very weak perceived social support.

THE PEOPLE YOU KNOW

Listed below are some different kinds of support and help that people receive from others. Put a check to show how sure you are that you receive the kind of support described in each question.

	Definitely Yes	Probably Yes	Maybe	Probably No	Definitely No
1. Are there people who would lend you anything if you needed it?	( )	( )	( )	( )	( )
2. Are there people who would help you if you had something that was too hard to do?	( )	( )	( )	( )	( )
3. Are there people who are proud of you?	( )	( )	( )	( )	( )
4. Are there people who love you?	( )	( )	( )	( )	( )
5. Are there people you can talk to about your problems?	( )	( )	( )	( )	( )
6. Are there people who like you just the way you are?	( )	( )	( )	( )	( )
7. Are there people who would help you make important decisions?	( )	( )	( )	( )	( )
8. Are there people who help you feel better when you are upset?	( )	( )	( )	( )	( )
9. Are there people you can talk to if you feel lonely?	( )	( )	( )	( )	( )
10. Are there people you can talk to about your feelings?	( )	( )	( )	( )	( )

	Definitely Yes	Probably Yes	Maybe	Probably No	Definitely No
11. Are there people who joke and kid around with you?	( )	( )	( )	( )	( )
12. Are there people who would take care of something of yours if you went away for awhile?	( )	( )	( )	( )	( )
13. Are there people who help you feel good about yourself?	( )	( )	( )	( )	( )

LIFE SATISFACTION INVENTORY

This affective measure asks participants to indicate the importance of 12 factors that influence their quality of life. Participants weigh the importance of each factor and then indicate their level of satisfaction. This measure is appropriate for adults.

If this measure seems useful, you might also want to consider the **How Will You Feel?** measure, which is another affective measure assessing participants' perceptions about quality of life. The **How Will You Feel?** measure asks for **expected** satisfaction levels rather than **current** satisfaction levels.

PURPOSE

Information about participants' life satisfaction may be useful for the following reasons:

- Administration of this measure at the beginning of the program may provide needs assessment information. For example, results of this measure may show that participants have low perceptions of their quality of life, thus emphasizing their need for instruction in stress management techniques. If participants feel that they are better able to handle stress, their life satisfaction may also increase.
- When this measure is administered prior to and following a program, it is possible to evaluate changes in participants' perception of their quality of life in twelve distinctive areas.

PROCEDURES

This instrument can be administered both at the beginning and at the end of the program. However, handbook users should be alert to concerns regarding the potential reactivity of affective measures. A measure is considered *reactive* if the experience of completing the measure prior to the program causes participants to react differently to the program. Handbook users should, therefore, carefully review each affective measure that they wish to use to determine its potential for making participants unduly sensitive to aspects of the program. If a measure is determined to be reactive, then program personnel should *not* administer that measure to *all* participants as a pretest and posttest. Instead, the measure could be administered to half of the program participants prior to program participation to determine participants' pre-program status. The measure could then be administered to the other half of the participants after program participation to assess participants' post-program status.

SCORING AND ANALYSIS

This inventory can be scored in two ways. One procedure relies on the SATISFACTION responses only, providing an easily obtained group estimate of participants' current life satisfaction.

A second procedure combines the IMPORTANCE responses with the SATISFACTION responses. This method provides a weighted assessment of life satisfaction based on the IMPORTANCE rating.

Procedure 1 — Satisfaction Responses Only

1. Add the point values of all the responses in Column 2 for all participants. (Ignore blanks; that is, do not count them when you count the number of responses.)
2. Divide this total by the total number of responses.

   EXAMPLE: Imagine that there are 10 program participants. First, add up all the numbers in Column 2 for all participants. Let's say the total is 190. Divide this total by the total number of responses from all participants. We will use 110 responses for this example. (The total possible number of responses is 120 if there are no blanks in Column 2.) Then divide 190 by 110 responses to get an average score of about 1.7.

The maximum total SATISFACTION score is 3.0; the minimum score is 1.0. Scores near 3.0 indicate that participants as a group have a high level of life satisfaction. Scores near 1.0 indicate that participants are dissatisfied.

Procedure 2 — Satisfaction Weighted by Importance Responses

1. Count the number of items rated "very important" (3) in Column 1.
2. Total the SATISFACTION ratings in Column 2 for the items counted in step 1.
3. Divide the total in step 2 by the total in step 1.

   EXAMPLE: For the same 10 participants used in the example above, count the number of items that they rated as "very important" in Column 1. Of the 120 responses possible, let's say there were 43 responses marked with a 3. For those same 43 responses, move over to Column 2 and add up the ratings given to them. Let's assume a total of 116. Then, divide 116 by 43 for a SATISFACTION average score of 2.7 which is weighted by participants' "very important" rating.

Again, the maximum attainable score is 3.0; the minimum is 1.0. Scores close to 3.0 indicate that participants are very satisfied with those factors rated "very important."

This same procedure can also be followed to determine participants' satisfaction for those items rated "somewhat important."

NOTES:

(1) If both this measure and the **How Will You Feel?** measure are used, a comparison can be made between participants' current life satisfaction and their expected satisfaction.

(2) Specific factors of interest can be isolated for scoring according to the directions above. For example, you might want to examine participants' satisfaction with the factor, "ability to handle problems."

LIFE SATISFACTION INVENTORY

Listed below are several factors that might influence your overall life satisfaction.

In the IMPORTANCE column, Column 1, indicate how important each factor is to you by using the following scale:

1 = Unimportant
2 = Somewhat important
3 = Very important

In the SATISFACTION column, Column 2, indicate how satisfied you are with each factor by using the following scale:

1 = Dissatisfied
2 = Somewhat satisfied
3 = Very satisfied

	Column 1	**Column 2**
FACTOR	**IMPORTANCE**	**SATISFACTION**
Your health		
Your physical appearance		
Your occupation (e.g., job, school, homemaking)		
Your ability to deal with people		
Your relationships with friends		
Your relationships with family		
Your sexual relationships		
Your spiritual life		
Your ability to handle problems		
Your financial condition		
Your leisure-time activities (e.g., hobbies, volunteer work, exercise program)		
Your success in achieving personal goals		

ARE YOU HAPPY?

This affective measure assesses participants' happiness with several factors that may influence their overall quality of life. This measure is appropriate for adolescents and preadolescents.

PURPOSE

Information about participants' life satisfaction may be useful for the following reasons:

- Administration of this measure at the beginning of the program may provide needs assessment information. For example, results of this measure may show that participants have low perception of their quality of life, thus emphasizing their need for instruction in stress management techniques. If participants feel that they are better able to handle stress, their life satisfaction may also increase.
- When this measure is administered prior to and following a program, it is possible to evaluate changes in participants' perception of their quality of life in eight areas.

PROCEDURES

This instrument can be administered both at the beginning and at the end of the program. However, handbook users should be alert to concerns regarding the potential reactivity of affective measures. A measure is considered *reactive* if the experience of completing the measure prior to the program causes participants to react differently to the program. Handbook users should, therefore, carefully review each affective measure that they wish to use to determine its potential for making participants unduly sensitive to aspects of the program. If a measure is determined to be reactive, then program personnel should *not* administer that measure to *all* participants as a pretest and posttest. Instead, the measure could be administered to half of the program participants prior to program participation to determine participants' pre-program status. The measure could then be administered to the other half of the participants after program participation to assess participants' post-program status.

SCORING AND ANALYSIS

Point values are assigned to responses as follows:

Definitely Yes = 5
Probably Yes = 4
Maybe = 3
Probably No = 2
Definitely No = 1

This inventory can be scored by adding the point values of all responses across participants and dividing this total by the number of responses. Blank items should be ignored and not counted when determining the number of responses. The maximum score attainable is 5; the minimum is 1. Scores near 5 indicate a high degree of life satisfaction while scores near 1 indicate a low degree of life satisfaction.

ARE YOU HAPPY?

Listed below are several things that might be important in your life. Put a check under the answer that tells how happy you feel about each part of your life.

Are you happy with . . .	**Definitely Yes**	**Probably Yes**	**Maybe**	**Probably No**	**Definitely No**
1. your health?	( )	( )	( )	( )	( )
2. the way you look?	( )	( )	( )	( )	( )
3. your work at school?	( )	( )	( )	( )	( )
4. the way you get along with people?	( )	( )	( )	( )	( )
5. your friends?	( )	( )	( )	( )	( )
6. your family life?	( )	( )	( )	( )	( )
7. the amount of money you have?	( )	( )	( )	( )	( )
8. what you do in your free time (hobbies, sports, etc.)?	( )	( )	( )	( )	( )

IDEAS ABOUT DECISIONS

This affective measure assesses participants' belief in the value of careful decision-making. This measure is appropriate for adolescents and preadolescents.

PURPOSE

Information about participants' belief in careful decision-making may be useful for the following reasons:

- Administration of this measure at the beginning of the program may provide needs assessment information. For example, results of this measure may indicate a need for strengthening participant's appreciation for careful decision-making in dealing with stress-related situations in their lives.
- When this measure is administered prior to and following a program, it is possible to evaluate growth in participants' appreciation for careful decision-making.

PROCEDURES

This instrument can be administered both at the beginning and at the end of the program. However, handbook users should be alert to concerns regarding the potential reactivity of affective measures. A measure is considered *reactive* if the experience of completing the measure prior to the program causes participants to react differently to the program. Handbook users should, therefore, carefully review each affective measure that they wish to use to determine its potential for making participants unduly sensitive to aspects of the program. If a measure is determined to be reactive, then program personnel should *not* administer that measure to *all* participants as a pretest and posttest. Instead, the measure could be administered to half of the program participants prior to program participation to determine participants' pre-program status. The measure could then be administered to the other half of the participants after program participation to assess participants' post-program status.

SCORING AND ANALYSIS

Point values are assigned to responses as follows:

Item No.	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
1	5	4	3	2	1
2	1	2	3	4	5
3	5	4	3	2	1
4	1	2	3	4	5
5	1	2	3	4	5
6	1	2	3	4	5
7	1	2	3	4	5
8	5	4	3	2	1
9	5	4	3	2	1
10	5	4	3	2	1

This inventory can be scored by adding the point values of all responses across participants and dividing this total by the number of responses. Blank items should not be counted in the number of responses. The maximum attainable score of 5 points indicates a strong belief in the importance of making decisions carefully.

IDEAS ABOUT DECISIONS

The sentences below are about making decisions. For each sentence, place a check to show how much you agree or disagree with the sentence.

	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
1. It is worth the time it takes to make decisions carefully.	( )	( )	( )	( )	( )
2. People should go with their first ideas when making decisions.	( )	( )	( )	( )	( )
3. People are happier with their decisions when they take the time to make them carefully.	( )	( )	( )	( )	( )
4. Spending a lot of time to make careful decisions is too difficult.	( )	( )	( )	( )	( )
5. Making careful decisions takes too much time.	( )	( )	( )	( )	( )
6. When making decisions, people should do what they feel, not what they think.	( )	( )	( )	( )	( )
7. People make equally good decisions no matter how they arrive at them.	( )	( )	( )	( )	( )
8. People who make quick decisions are usually disappointed with them later.	( )	( )	( )	( )	( )
9. People should take time to make decisions carefully.	( )	( )	( )	( )	( )
10. It is easy to make decisions carefully.	( )	( )	( )	( )	( )

CHAPTER FOUR

Locally Conducted Psychometric Studies

Locally Conducted Psychometric Studies

As described in Chapter One, the first step in using the newly developed handbook measures to examine program effectiveness is to select those measures that match program goals. However, evaluators cannot assume that a measure that appears to assess a desired program outcome will produce valid data about that outcome. When evaluators use a measure, they first want to determine the technical quality of that measure to ensure that any conclusions drawn about a program's effects are warranted. The purpose of this chapter is to assist evaluators in conducting validation studies for those handbook measures chosen for use in program evaluation.

Determining the Technical Quality of Measuring Devices

The degree to which a measuring instrument yields scores from which one can make legitimate inferences is referred to as validity. Tests are not valid or invalid. Rather, it is the inferences made, based on test results, that are valid or invalid. It is, therefore, technically accurate to focus on the *validity of score-based inferences* rather than the validity of a particular measuring device.

The concept of validity is highly dependent on the particular way in which a measuring instrument will be used. For example, a measure of the use of coping skills to deal with stress may permit a valid inference regarding the *number* of different skills that program participants use, but may yield invalid inferences regarding the *frequency* with which participants use each skill. Furthermore, a test may yield valid inferences for a particular purpose with one population but invalid inferences for the same purpose with a different population. Thus, because validity varies on the basis of purpose and population, it is most appropriate to examine validity in the setting in which a measure will be used.

A second factor in determining the technical quality of a measurement instrument deals with the extent to which the instrument produces reliable, that is, consistent results. Because the newly developed handbook measures have been subjected only to small-scale field tests, no reliability data are currently available. It is hoped that handbook users will conduct their own reliability studies and share those results with the Centers for Disease Control. In this way, results can be compiled over time and, subsequently, provided to handbook users. Procedures for evaluating the reliability of the handbook measures will be presented following a discussion of local validation approaches.

Categories of Validity Evidence

There are three major types of evidence regarding validity. These include content-related evidence of validity, criterion-related evidence of validity, and construct-related evidence of validity. The procedures for securing each type of validity evidence will be described below.

Content-related evidence of validity. Content-related evidence of validity involves the careful review of a measure's content by individuals identified as experts in the content area being assessed. This type of validity evidence is particularly important for measures designed to assess examinees' knowledge and skills. To secure positive content-related validity, the measure must include only those items that correspond to the content area being assessed and its items must address all important facets of that content area. The systematic, expertise-rooted procedures used to develop the handbook's instruments helped to ensure that appropriate content was built into the measures. Subsequent reviews by external experts confirmed that the measures are, indeed, focused on suitable content. These development procedures and the role of expert advisors in the project are described in the handbook's preface.

If there are questions regarding the suitability of the content in any of the handbook's measures, content-related validity can be examined by assembling a panel of experts who can judge the suitability of a measure's content for the specific program-evaluation purpose for which the measure is to be used. A panel of approximately ten knowledgeable individuals can be asked to review the measuring instrument's items, one-by-one, and render independent yes/no judgments regarding the appropriateness of each item's content (in relationship to the inference that the program evaluators wish to make on the basis of the measure). In addition, panelists can be asked to determine whether any important content has been omitted from the measure. For example, if a knowledge measure such as **Facts About Stress** is being reviewed, panelists might be asked to first think of all the important facts about stress that program participants must know and then to indicate the percentage of those facts that are present in the measure being reviewed. This straightforward indication of a measure's content representativeness, when coupled with judgments regarding the content appropriateness of a measure's items, can yield important content-related evidence of validity for a measure.*

Criterion-related evidence of validity. Criterion-related evidence of validity requires that a measure be checked against an independent criterion. The independent criterion or standard should be one that the measure would be expected to predict. Criterion-related validity is most important for the handbook measures in the areas of behavior and intention. In the area of behavioral self-reports, for example, criterion-related validity would focus on the degree to which the self-reports reflect actual behavior. So, for example, criterion-related validity for a self-report instrument designed to measure the use of coping skills would be secured by correlating responses on this instrument with observations (by others) of the extent to which the skills were *actually* being used.

External criterion measures, such as observations, while often more accurate measures of behavior than self-reports, are extremely costly and time consuming to use. Thus, although it may be possible to use such criterion measures in a one-time validity study, they typically will not eliminate the need for self-report instruments in routine program evaluations. The general procedure for conducting a criterion-related validity study is shown in Figure 4.1.

A correlation of approximately 0.50 or higher between the measure and criterion would indicate that the new measure is predictive of the external criterion measure and, therefore,

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* For additional information about how to conduct content-related validation studies, see Annotated Bibliography Nos. 18, 23, 27, and 35

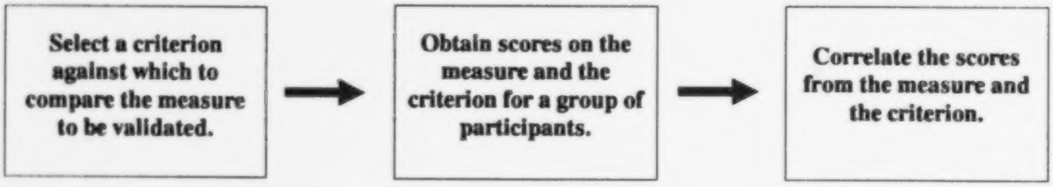
Select a criterion against which to compare the measure to be validated.
Obtain scores on the measure and the criterion for a group of participants.
Correlate the scores from the measure and the criterion.

Figure 4.1: Procedure for conducting criterion-related validity studies

is measuring what it is intended to measure. A low correlation would call into question the self-report instrument as a measure of the behavior of interest.

Each criterion-related validity study must be specifically designed for the particular measure being examined and the purpose for which it will be used. For example, imagine that an evaluator wanted to examine the criterion-related evidence of validity for the handbook's measure entitled **How Will You Cope**? The evaluator must first identify an appropriate criterion measure. How is a program evaluator likely to use an intention measure? The most likely use would be to employ it as a proxy measure foreshadowing a program's effect on the future behavior of participants. That is, will program participants continue to use coping skills in the future? Thus, an appropriate criterion measure might be the reported use of coping skills several months following the program.

To assemble criterion-related evidence of validity for the intention measure, a program evaluator could administer the intention measure at the end of the program to a group of at least 30 participants (or repeat this process each session until responses from at least 30 participants are obtained) and obtain completed self-report surveys several months later regarding participants' use of coping skills. Once both measures are collected for every individual, a correlation could be computed between the strength of intention for using a given coping behavior and whether the coping skill was being used following the program. Thus, the criterion-related validity study would examine whether the intention measure was, in fact, predictive of later behavior. A measure that can serve as a meaningful proxy for participants' future behavior can prove highly useful in the evaluation of a program's impact on participants.*

Construct-related evidence of validity. The final type of validity evidence to be reviewed, construct-related evidence of validity, is particularly important for those handbook measures that do not have a clear criterion against which they can be evaluated. Such measures include the attitudinal and affective measures such as **Keeping Your Cool,** a measure that examines an individual's perceived ability to cope with stressful situations. Construct-related validity involves the gradual accumulation of data regarding what a test measures. Three strategies are customarily used to secure construct-related evidence of

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* For additional information about the design and analysis of criterion-related validity studies, see Annotated Bibliography Nos. 18, 23, 27, and 35.

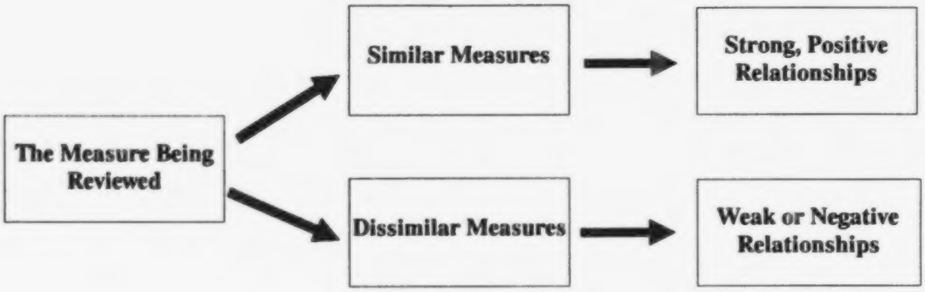
The Measure Being Reviewed
Similar Measures
Strong, Positive Relationships
Dissimilar Measures
Weak or Negative Relationships

Figure 4.2: Correlations between measures assessing similar/dissimilar attitudinal dimensions

validity for a measure. First, in the *related-measures strategy,* predictions can be tested about the extent to which the measure of interest is correlated with other measures. For example, perceived ability to cope should be positively related to other measures aimed at assessing a similar attribute but should show reduced correlations with measures tapping different attitudinal dimensions. Thus, other existing measures can be correlated with the measure of interest to help clarify what is being measured.

If the correlations are consistent with the prior predictions, then construct-related evidence of validity has been obtained to support the defensibility of inferences based on the measure's use. Figure 4.2 illustrates the anticipated correlations between the measure of interest and other similar and dissimilar measures.

A second approach to examining construct-related validity involves predictions about group differences and is referred to as a *differential-populations strategy.* For this procedure, two or more groups are identified which are expected, based on other characteristics, to perform differently on the measure of interest. For example, the two groups might consist of individuals who work in high-pressure jobs versus those who do not. If the anticipated performance difference between the two groups is not obtained, it would raise the question as to whether the test was measuring what it was thought to measure.

A third strategy for securing construct-related evidence of validity is referred to as an *intervention strategy* because it involves the use of interventions such as training programs. For instance, a measure examined via this strategy could be administered to a group of participants before and after a "proven" stress management training program. If a difference in participants' scores on the measure is not observed, then the construct-related evidence of validity regarding the measure being reviewed is not supportive of the measure's use.

Construct-related evidence of validity is never based on a single study. Instead, consideration of a variety of studies, employing multiple validation strategies such as those described here, will help provide greater clarification regarding the appropriateness of using a given measuring instrument.*

Types of Reliability

A second characteristic of a defensible measurement instrument is the reliability or consistency with which it measures. The reliability of a test can be examined in three distinct ways. These include test-retest reliability, alternate-forms reliability, and internal consistency. Each of these approaches will be described below.

Test-retest reliability. Test-retest reliability (also referred to as *stability* reliability) examines the extent to which a measurement instrument is consistent over testing occasions. That is, will an individual who received a particular score on one testing occasion receive a similar score on a different testing occasion. Typically, to secure test-retest reliability information, an instrument is administered once to a group of individuals (30 or more). The same instrument is then administered again under similar conditions to the same group of individuals approximately two to four weeks later. Individuals' scores from the two administrations are then correlated. The higher the correlation, the greater the stability of measurement over time. Short tests, or other tests that are likely to be easily remembered, may result in an overestimate of reliability if participants recall their answers, and hence, respond similarly on the second testing occasion.

Alternate-forms reliability. The knowledge and skill measures in this handbook have two forms that may be used for a pretest to posttest comparison. The administration of one form for the pretest and the other form for the posttest is desirable because the pretest may sensitize participants to pay more attention to those issues included on the pretest than to other equally important issues. However, to draw defensible conclusions based on the use of two different forms at pretest and posttest, the forms must be equivalent.

To examine alternate-forms reliability, it is necessary to administer both forms to the same group of individuals. The scores from the two forms can then be correlated. High correlations indicate that the same conclusions would be drawn about an individual or group of participants regardless of which of the two forms had been used. Thus, there would be reliable or consistent measurement across alternate forms. A high alternate-forms reliability coefficient does not guarantee that the forms are perfectly equidifficult. If the two forms are not of equal difficulty, that is, participants perform consistently better on one form than the other, it would still be possible to obtain high between-forms correlations. Thus, it is important to be attentive to mean scores on the two test forms. It is also permissible to use p-values (the percent of examinees getting each item correct) to reassign items to forms so that they are more equidifficult. After the redistribution of items, a second alternate-forms reliability study should be conducted.

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* For additional information about how to conduct construct-related validity studies, see Annotated Bibliography Nos. 18, 23, 27, and 35.

Handbook users should not assume equivalence or equidifficulty for the multiple forms provided in this handbook. Until alternate-forms reliability and test difficulty are examined, the measures should be used in a design such that half of the participants take Form A as a pretest and Form B as a posttest while the other half take Form B as a pretest and Form A as a posttest. This counterbalancing technique eliminates the possible influence of one form being more difficult than the other.

Internal consistency. Internal consistency examines the extent to which the instrument measures a single or related set of constructs. The higher the internal consistency, the greater the homogeneity of items on the test. A test thought to measure a single attitudinal dimension should have relatively high internal consistency reliability. Procedures for calculating internal consistency include split-half reliability, Kuder-Richardson formulas, and Cronbach's Alpha. The split-half reliability coefficient is calculated by administering the test to a group of at least 30 participants and then correlating scores from the odd versus the even items. A correction for test length must then be made using the Spearman-Brown formula. The split-half procedure is very similar to alternate-forms reliability in that two "forms" are correlated by separating the odd and even items. Kuder-Richardson formulas for internal consistency provide an estimate of the average of all possible split-halves. These formulas, like Spearman-Brown, require that test items be binary-scored, that is able to be scored as right or wrong. Cronbach's Alpha is identical to Kuder-Richardson for binary scored items but can also be used for items that yield responses to which several points can be assigned, such as items on **Keeping Your Cool**.

Not all forms of reliability need to be computed for every test. For example, alternate-forms reliability would be computed only for those measures that have two forms. Internal consistency estimates would not be appropriate for multidimensional measures. Test-retest reliability is appropriate for most measures but often presents pragmatic problems due to the need to retest the same individuals.*

Groups and Individuals

The validity and reliability procedures reviewed here were originally developed to examine the quality of tests used for *individual* assessment purposes. In contrast, the recommended use of the handbook measures is to perform *group* analyses for program evaluation. Thus, the appropriate reliability issue is whether scores for a group of individuals are relatively consistent. Similarly, the validity issue is whether changes in scores for a group of individuals are reflective of changes in the group's knowledge, skills, affect, or behavior. Because group scores are more stable than individual scores, the procedures outlined above are likely to underestimate the reliability and validity of the measures when used for program evaluation. Practically speaking, a measurement instrument with a lower reliability or validity coefficient would be acceptable when used for group rather than individual diagnosis. For example, Salvia and Ysseldyke (1981, p. 98) have recommended the following minimum standards for alternate-forms reliability:

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* For additional information about how to examine the reliability of measurement instruments, see Annotated Bibliography No, 18, 19, 23, 27, and 35.

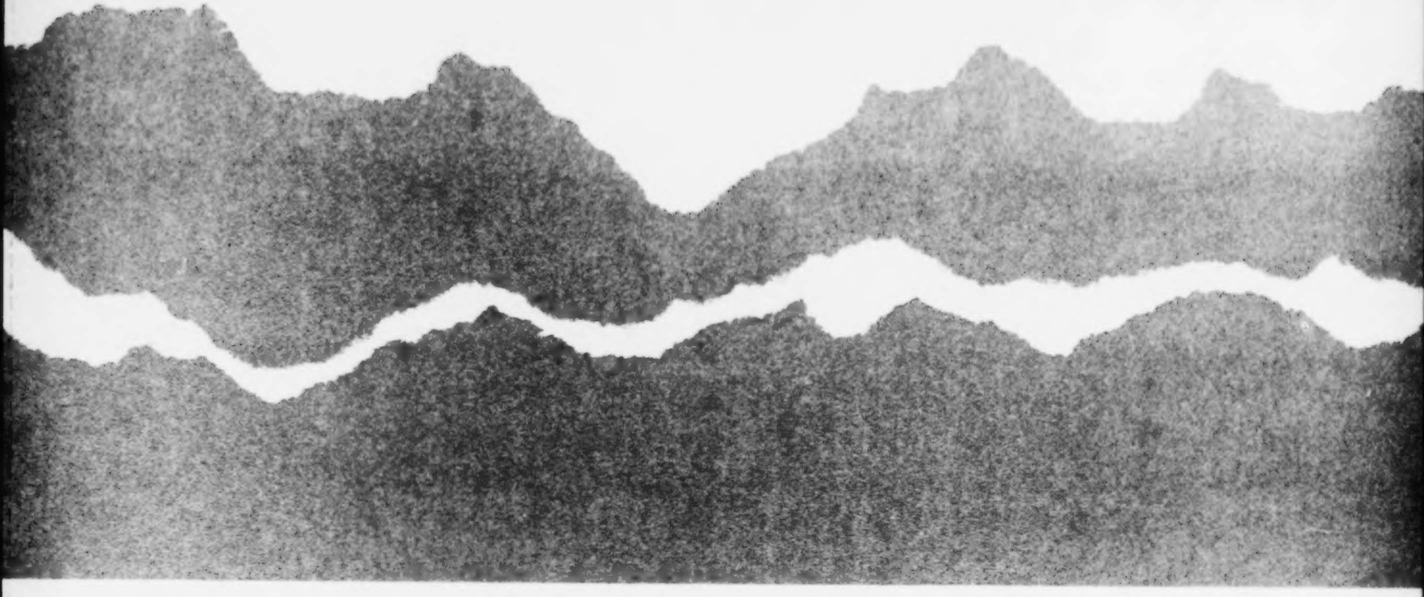
.60 - when scores are reported for groups

.80 - when scores are used for individual screening

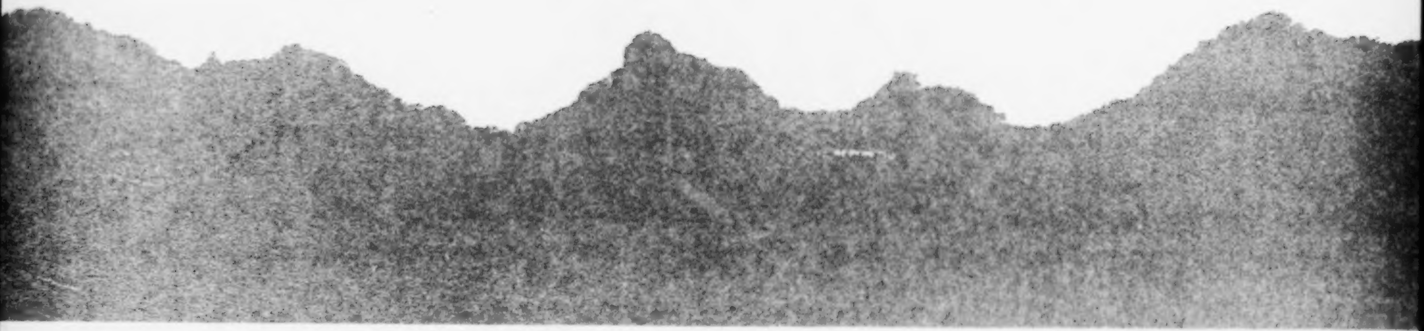
.90 - when scores are used for important educational decisions for individuals

Thus, standards for acceptable reliability and validity vary depending on the purpose for using a particular measure. However, minimal levels for each are critical for making sound decisions about a program. With a little creativity and effort, studies of reliability and validity can often be integrated into the ongoing operation of a program.

In addition to providing a brief overview, the major purpose of this chapter was to encourage handbook users to conduct local reliability and validity studies and to consider the involvement of a measurement specialist or the use of appropriate references in designing such studies. As suggested at the outset of the chapter, if such local studies are carried out, results should be forwarded to the Centers for Disease Control (Attention: Dr. Diane Orenstein, Project Officer, Center for Health Promotion and Education, Centers for Disease Control, 1600 Clifton Road N.E., Atlanta, GA 30333). This information will be shared with future handbook users.



Appendices



Appendix A

AMPLIFIED CONTENT DESCRIPTORS*

FACTS ABOUT STRESS
(Adult/Adolescent Measure)

LEARNING ABOUT STRESS
(Adolescent/Preadolescent Measure)

The Nature of Stress

1. Stress is the physiological and psychological response to any demand made on the individual. The sources of these demands are called stressors.
2. Some degree of stress is essential for life.
3. Stress is harmful when it is too extreme and/or lasts too long.
4. The best level of stress is the amount that improves a person's performance without producing harmful side effects.
5. Stress is a function of the environment and how one views and acts upon the environment.
6. Frequently, the stress produced by a situation depends more on the person's perception of the situation than on the situation itself.
7. People react to physical stressors, psychosocial stressors, and symbolic stressors.

The Nature of Stressors

8. Heat, cold, injury, and physical exertion are physical stressors.
9. Unprotected exposure to loud noise and bright light is stressful.
10. Frustration, crowding, overload, deprivation, noise, and life changes are psychosocial stressors.
11. Frustration occurs because individuals lack the ability to take necessary actions or their actions are blocked by external obstacles.
12. The amount of stress individuals feel when in a crowd depends on how much control they think they have in the situation and on their cultural background.

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* The amplified content descriptors are not exhaustive accounts of stress management content.

13. Overload occurs when the demands on a person exceed that individual's ability to meet those demands.
14. Deprivation occurs when individuals receive too little meaningful stimulation.
15. Too little stimulation may be as stressful as too much.
16. Noise can be stressful when it is unpredictable and inappropriate.
17. Marriage, retirement, vacation, loss of a job, and the death of someone close are examples of life changes.
18. Both favorable and unfavorable life changes require adjustment and, therefore, can be stressful.
19. Symbolic stressors are the symbolic or imagined threat of physical or psychological stressors.
20. Unwarranted fears and unpleasant thoughts or memories are symbolic stressors.
21. Thinking about an unpleasant event can cause an individual as much stress as actually experiencing the event.

Personality Factors

22. An individual's reaction to stressors is determined by that person's prior experiences, attitudes, values, and perception of the stressor.
23. Thinking of oneself as helpless and worthless can lead to increased stress.
24. An individual who sees problems as worse than they are is likely to be stressed most of the time.
25. The Type A personality, which is associated with stress, is marked by excessive competitive drive, aggressiveness, and a sense of time urgency.
26. One of the most common traits of the Type A personality is trying to think or do two or more things at the same time.

Environmental Factors

27. The most stressful situations are usually those over which individuals feel they have little control.
28. An individual's expectation about a stressful event can influence the individual's stress level.
29. An individual's stress level can increase if that individual receives no information or false information about a potentially stressful event prior to its occurrence.

Physiology of Stress

30. The physiological responses to stressors occur automatically, without much conscious thought.
31. Stress prepares the individual for physical activity.

32. The physiological responses to stressors may occur in three stages.
33. The first stage of responses include increased heart rate, increased blood pressure, increased rate of respiration, increased muscle contraction, increased activity of most hormones, and decreased digestive activity.
34. If stress continues, the body enters the second stage in which the body adapts to the stressor and many body systems return to a normal level of functioning.
35. If stress continues for a long time, the body enters the third stage in which exhaustion and disease may occur.

The Effects of Stress

36. Stress may lead directly and indirectly to illness.
37. Stress may lead indirectly to illness by decreasing the body's ability to defend itself against disease.
38. Hormones released under stress remain in the body for several hours and may lessen the body's ability to fight infection.
39. Arthritis and cancer may be indirectly related to stress.
40. Stress can lead directly to illness by causing the fatigue or failure of organ systems in the body.
41. The type of illness from stress that an individual develops may depend on that person's heredity and prior experiences, and on which organ system is the weakest.
42. Stress is a direct cause in the development of some muscular problems, ulcers, and high blood pressure.
43. Headaches, backaches, posture problems, and spasms of the digestive tract are muscular problems that can be caused by prolonged muscle contraction due to stress.
44. Many headaches are caused by prolonged contraction of the muscles of the head and neck.
45. Muscles that are constantly contracted can cause a person to feel anxious.
46. Muscles that are constantly contracted lead to increased stress.
47. Constant arousal due to stress can cause an individual's blood pressure to remain at a high level.
48. Although it usually lacks obvious symptoms, high blood pressure damages the heart, liver, kidneys, and other organs.
49. Whether an individual's personality and behavior directly cause heart disease is a matter of dispute.
50. The Type A personality is associated with heart disease.
51. A person under stress may feel anxious, frustrated and/or worried.
52. A person under stress may feel confused or unable to concentrate.
53. Severe stress may make people accident-prone.

54. A person under stress may be insensitive toward other people.
55. A person under stress may not be able to perform tasks as well as usual.
56. A person under stress may return to old habits even though they may not be appropriate to the present situation.

Stress-Related Aspects of Diet

57. Both caffeine and sugar may be stressful for some people.
58. Caffeine is present in coffee, tea, chocolate, some soft drinks and some over-the-counter medications.
59. Excessive stress may increase the rate at which one's body uses up certain B vitamins and Vitamin C.

COPING WITH STRESS
(Adult/Adolescent Measure)

WAYS TO LOWER STRESS
(Adolescent/Preadolescent Measure)

General Information

1. Individuals cannot avoid all stress, but they can learn to cope with stress.
2. Individuals should become aware of how they experience stress in their bodies.
3. Individuals should identify the environmental situations that prompt their stress.
4. Even if individuals cannot change the nature of stressors, they can change their response to stressors.

Lifestyle Changes

5. Intentionally changing the stressful aspects of one's lifestyle or environment can help one cope with psychosocial stressors such as frustration, crowding, overload, deprivation, noise, and life changes.
6. Improving one's skills can reduce the stress caused by lack of ability.
7. An effective way to reduce stress is to find alternatives for goals and behaviors that one has been unable to accomplish.
8. Avoiding crowded situations whenever possible is an effective technique for reducing the stress of crowding.
9. Learning to say "no" to requests for time when one already has enough to do reduces stress.
10. Delegating authority and responsibility to others can help reduce stress.
11. Stress can be reduced by breaking down a long and complicated task into smaller parts.
12. Time management reduces stress by matching things that need to be accomplished with the time available.
13. Listing tasks in order of their importance so that the most important tasks can be completed first helps to reduce stress.
14. Accepting the fact that no one can do everything perfectly helps to reduce stress.
15. Stress can be reduced by anticipating periods of boredom and planning something stimulating to do during those periods.
16. Wearing earplugs is an effective way to cut down on the stress caused by loud and/or annoying noise.
17. When undergoing important life changes, stress can be minimized by reducing the number of other changes that are made.

18. Vacations that involve dramatic changes in location, routine, or level of stimulation often increase stress.
19. Stress can be reduced by establishing routines that become automatic.
20. Receiving accurate information and having the ability to do something about a stressful situation can reduce one's stress level.

Personality Changes

21. Intentionally changing the stressful aspects of one's personality can help one cope with symbolic stressors such as unwarranted fears or unpleasant thoughts.
22. Improving one's self-concept reduces stress.
23. Becoming more assertive and focusing on the positive aspects of oneself and one's life can improve one's self-concept.
24. Thought-stopping is a technique whereby a stressed individual intentionally stops thinking negative, persistent thoughts.
25. Developing close friendships with people one can trust reduces stress.
26. Type A behavior can be reduced by becoming less competitive with oneself and others, concentrating on one project at a time, and slowing down.

Relaxation

27. Physiologically, relaxation is the opposite of the stress response.
28. A decreased heart rate, decreased blood pressure, decreased rate of respiration, and decreased muscle activity are characteristics of relaxation.
29. By producing one characteristic of relaxation, an individual can start the chain of physiological changes that occur when one relaxes.
30. Relaxation replaces the usual thought processes with an altered state of consciousness.
31. Being comfortable, breathing deeply, and assuming a quiet, accepting attitude encourages relaxation.
32. Relaxation can be used in short spurts and almost anywhere.

Relaxation Training

33. Relaxation training allows people to regulate bodily processes that were formerly considered beyond conscious control.
34. Relaxation training helps people become more aware of their bodies and how they respond to stress.
35. Biofeedback, autogenic training, progressive relaxation, and meditation are relaxation training techniques.

36. Biofeedback is the use of an instrument which alerts the individual to subtle changes in bodily processes.
37. Muscle contraction, brain activity, heartbeat, and blood pressure are bodily processes that can be monitored by biofeedback.
38. Once people have learned how to control bodily processes using biofeedback instruments, they usually can duplicate the results when not monitored by the instruments.
39. Biofeedback is an effective technique for relieving muscular problems and other disorders associated with stress.
40. Autogenic training is a form of relaxation training which uses self-directed images of relaxed states.
41. In autogenic training, one attempts to produce physical sensations that are associated with relaxation.
42. Imagining that one's body parts are warm and heavy is a technique used in autogenic training.
43. Autogenic training is an effective technique for relieving high blood pressure and other vascular problems associated with stress.
44. In progressive relaxation, one learns to relax muscles by first learning what it feels like to be tense and then what relaxation feels like.
45. Progressive relaxation is an effective technique for relieving headaches, backaches, and other muscular problems caused by stress.
46. In one form of meditation, attention is focused on one object, such as a word, sound, or one's own breath.
47. A quiet internal and external environment are essential for effective meditation.
48. Sitting in a comfortable position and wearing loose clothing help to quiet one's internal environment.
49. Being in a location where one won't be disturbed helps to quiet one's external environment.

Physical Activity

50. Physical activity that is not competitive is an effective stress management technique.
51. When using physical activity as a stress management technique, one should be aware of how the activity is affecting one's body and be careful not to overexert.
52. Physical activity can be used to reduce stress in the body, to decrease one's reactivity to future stress, and to promote feelings of well-being and inner calm.
53. Swimming, running, dancing, biking, and other individual sports are appropriate physical activities for reducing stress in the body.
54. A person who uses physical activity to reduce stress in the body should recognize when stress occurs and pursue physical activity soon afterwards.

55. A regular physical activity program can decrease the effects of future stress.
56. Physical activity that is vigorous enough to bring relaxation afterwards makes a person less open to the negative effects of stress.
57. Becoming involved in the joy of physical activity leads to feelings of well-being.

Diet Management

58. One should consume less caffeine, especially during stressful times.
59. Getting enough vitamins, especially the B vitamins and Vitamin C, is important during stressful times.
60. B vitamins are found in breads, beans, nuts, and meats; Vitamin C is found in fruits and vegetables.

STRESS MANAGEMENT CONTENT BIBLIOGRAPHY

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Fisher, S. (1986). *Stress and strategy*. London: Lawrence Erlbaum Associates.

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Appendix B

INFORMED CONSENT PROCEDURES

Prior to administering measures to participants, program personnel should inform participants about the content covered by the measures and the purpose of the program's evaluation study. Program personnel may also wish to provide the opportunity for participants to indicate whether or not they consent to participate in the study and complete the selected measures. Informed consent is obtained by presenting all information pertinent to the study and asking the participant to affix a signature indicating that the information has been read and that consent is given to participate.

If the decision is made to obtain informed consent, program personnel have the choice of employing a "passive" consent procedure or an "active" consent procedure. *Passive informed consent* consists of asking participants to sign and return a consent form only *if they do not wish to participate* in the study. Participants who do not return the consent form are considered eligible to participate in the study.

Active informed consent requires participants to sign and return the consent form *if they wish to participate.* Only those participants who return a signed form can be included in the study. Consequently, the participation rate resulting from an active consent procedure is generally lower than that obtained from a passive consent procedure.

To construct an informed consent form, program personnel should consider including the following items:

1. A general statement of the program goals and objectives.
2. A brief explanation of the study procedures and measures.
3. An indication that the participant is free to withdraw consent and to discontinue participation at any time.
4. An explanation of the procedures to be taken to ensure anonymity and confidentiality of responses.
5. An indication that participants are free not to answer specific items or questions.
6. A place for the participants to affix their signatures under a statement indicating that the participant agrees to participate (active consent) or does not agree to participate (passive consent) in the study. If appropriate, a date for the return of the consent form should be specified.

Appendix C

ANNOTATED EVALUATION BIBLIOGRAPHY

1. Alkin, M.C., & Solmon, L.C. (Eds.). (1983). *The costs of evaluation*. Beverly Hills, CA: Sage.

   In this collection of essays both theoretical and practical issues relevant to cost-focused program evaluations are presented.

2. American Psychological Association. (1973). *Ethical principles in the conduct of research with human participants*. Washington, DC: Author.

   This treatise focuses on the appropriateness of carrying out various types of research investigations with human subjects. Because the American Psychological Association has had a long-standing concern about ethical issues in the conduct of research investigations, this publication will be of interest to numerous evaluators of health education programs.

3. American Psychological Association, American Educational Research Association, National Council on Measurement in Education. (1985). *Standards for educational and psychological tests.* Washington, DC: Author.

   This volume presents the most widely used set of standards for psychological and educational tests. Frequently cited by users of educational tests, the standards have recently been employed in numerous judicial deliberations. Relatively brief, the standards should be consulted by health educators who employ assessment devices regularly.

4. Anderson, L.W. (1981). *Assessing affective characteristics in the schools*. Boston: Allyn and Bacon.

   Anderson provides an excellent set of practical suggestions for the creation of affective assessment instruments. He includes one of the most easily understood expositions of various scaling procedures including Likert, Thurstone, and Guttman scales.

5. Bausell, R.B. (Ed.). *Evaluation and the health professions*. Newbury Park, CA: Sage.

   This quarterly publication deals with a variety of evaluation relevant issues of interest to health educators.

6. Berk, R.A. (Ed.). (1984). *A guide to criterion-referenced test construction*. Baltimore: The Johns Hopkins University Press.

   This collection of essays consists of papers presented at the first Johns Hopkins University National Symposium on Educational Research. In addition, a number of more recently written chapters have been included in this revision of a 1980 text. The authors treat many of the important problems, both conceptual and technical, facing developers and users of criterion-referenced measures.

7. Berk, R.A. (Ed.). (1982). *Handbook of methods for detecting test bias*. Baltimore: The Johns Hopkins University Press.

   This collection of individual essays offers the reader a comprehensive depiction of methods currently available to detect the presence of bias in tests.

8. Campbell, D.T., & Stanley, J.C. (1966). *Experimental and quasi-experimental designs for research*. Chicago: Rand McNally.

   This volume, originally a chapter in a larger volume, has had substantial impact on the fields of research and evaluation. Evaluators of health education programs will wish to consider this truly classic treatment of data-gathering designs suitable for experimental and quasi-experimental settings.

9. Churchill, G.A., Jr. (1979). *Marketing research: Methodological foundations* (2nd ed.). Hinsdale, IL: The Dryden Press.

   Although written in the context of marketing research, this textbook covers several topics of vital importance in evaluation. Topics such as research design, data collection, sampling, and data analysis are covered in a readily understandable yet accurate way. An excellent resource.

10. Cohen, J. (1977). *Statistical power analysis for the behavioral sciences* (Rev. ed.). New York: Academic Press.

    Cohen offers a useful treatment of factors which should be considered when one draws samples for use in research or evaluation activities. Of special interest is the set of easy-to-use guidelines he offers for determining the estimated sample size necessary to detect differences between groups.

11. Cook, T.D., & Campbell, D.T. (1976). The design and conduct of quasi-experiments and true experiments in field settings. In M.D. Dunnette (Ed.), *Handbook of industrial and organizational psychology*. Chicago: Rand McNally.

    This is an updated version of the famous exposition of quasi-experimental and experimental data-gathering designs by Donald T. Campbell and Julian C. Stanley (see Reference No. 8). An excellent discussion of four types of validity is featured in this essay.

12. Cook, T.D., & Campbell, D.T. (1979). *Quasi-experimentation: design & analysis issues for field settings*. Chicago: Rand McNally.

    This widely cited volume provides a comprehensive treatment of quasi-experimental investigations in settings of substantial relevance to the concerns of health educators. There are excellent discussions of internal and external validity, including the various threats to both types of validity. A systematic consideration of the commonly used data-gathering designs is offered, including an extended appraisal of interrupted time-series designs.

13. Cordray, D.S., Bloom, H.S. & Light, R.J. (Eds.). (1987, Summer). *Evaluation practice in review* (New Directions for Program Evaluation, No. 34). San Francisco: Jossey-Bass.

This volume contains a set of thought-provoking chapters dealing with what has been learned about the practice of evaluation during the past decade. The chapters on evaluation politics by Eleanor Chelimsky and on naturalistic evaluation by Egon Guba would be a particular interest to evaluators of health education programs.

14. Cronbach, L.J. (1963). Course improvement through evaluation. *Teachers College Record*, *64*, 672-683.

This article is an early piece, presenting the virtues of what would later be termed "formative" evaluation. It rings as true today as it did more than two decades ago, and it applies as much to evaluation in health education as it does to more traditional evaluation. Emphasizing the role of evaluation in gathering information that can improve programs, this article is well worth reading.

15. Cronbach, L.J., Ambron, S.R., Dornbusch, S.M., Hess, R.D., Hornik, R.C., Phillips, D.C., Walker, D.F., & Weiner, S.S. (1980). *Toward reform of program evaluation*. San Francisco: Jossey-Bass.

This important book considers the function of evaluation in a pluralistic society and presents 95 theses on the role of evaluators and evaluations. In addition to providing a contemporary conception of evaluation, it provides a historical and multidisciplinary perspective of the field. This volume will be of considerable interest to those evaluating health education programs.

16. Cronbach, L.J. (1977). *Analysis of covariance in nonrandomized experiments: Parameters affecting bias*. Unpublished occasional paper, Stanford Evaluation Consortium, Stanford University.

A highly technical piece on the complications associated with using analysis of covariance, this article is recommended only for those prepared to handle a critical data-analysis problem in a sophisticated way.

17. Cronbach, L.J., & Furby, L. (1970). How should we measure 'change' – or should we? *Psychological Bulletin*, *74*, 68-80.

A technical treatise on the dangers associated with using gain scores. A very significant piece, but recommended only for those with some psychometric training.

18. Cunningham, G.K. (1986). *Educational and psychological measurement*. New York: Macmillan.

This is a standard introductory text focusing on the major topics associated with measurement as it applies to such tasks as program evaluation.

19. Ebel, R.L. (1979). *Essentials of educational measurement* (3rd ed.). Englewood Cliffs, NJ: Prentice-Hall.

This is a standard, easily read introductory text, covering important topics in the field of educational testing. Ebel, a prominent leader of traditional educational testing practices, provides a lucid treatment of a wide range of measurement topics.

20. Fetterman, D.M. & Pitman, M.A. (Eds.). (1986). *Educational evaluation: Ethnography in theory, practice, and politics*. Beverly Hills, CA: Sage.

    This collection of essays touches on ethnographically oriented evaluation of educational programs. Health educators wishing to learn about this recently emphasized approach to educational evaluation will find this volume of interest.

21. Green, L.W. (1979). Research methods translatable to the practice setting: From rigor to reality and back. In S.J. Cohen (Ed.), *New directions in patient compliance* (pp.141-151). Lexington, MA: Lexington Books.

    Green attends to a practical dilemma facing those who evaluate health education programs, namely, the necessity to make trade-offs between validity and feasibility in field settings. Six strategies for coping with evaluation under adverse circumstances are described.

22. Green, L.W., & Figa-Talamanca, I. (1974). Suggested designs for evaluation of patient education programs. *Health Education Monographs, 2* (1), 54-71.

    In this essay Green and Figa-Talamanca suggest data-gathering designs for conducting evaluations of patient education programs. The authors also explore several issues related to evaluations of this variety.

23. Green, L.W., & Lewis, F.M. (1986). *Measurement and evaluation in health education and health promotion*. Palo Alto, CA: Mayfield.

    This volume is an excellent resource for health educators concerned with the evaluation of their programs. Green and Lewis provide a series of useful explanations of topics in both measurement and health evaluation. Their expositions are peppered with practical examples drawn from health education and health promotion.

24. Hambleton, R.K., Swaminathan, H., Algina, J., & Coulson, D.B. (1978). Criterion-referenced testing and measurement: A review of technical issues and development. *Review of Educational Research, 48* (1), 1-48.

    This is a comprehensive review of the field of criterion-referenced testing. Hambleton and his colleagues do a masterful job of isolating the key issues in criterion-referenced testing and describing results of research investigations bearing on those issues. Somewhat technical at times, this review is one of the more widely cited essays dealing with criterion-referenced testing.

25. Hays, W.L. (1973). *Statistics for the social sciences*. New York: Holt, Rinehart, and Winston.

    This comprehensive text handles basic and advanced statistical considerations. Somewhat technical at points, Hays nonetheless provides an excellent set of step-by-step guidelines to statistical practice.

26. Joint Committee on Standards for Educational Evaluation. (1981). *Standards for evaluations of educational programs, projects, and materials*. New York: McGraw-Hill.

> The development of these evaluation standards was spearheaded by a joint committee of the American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education. Thirty standards are presented, addressing issues related to deciding whether to evaluate, defining the evaluation problem, designing the evaluation, budgeting for the evaluation, collecting and analyzing data, and reporting the evaluation. Intended for both consumers of evaluation and individuals conducting evaluations, this reference may be of most use to evaluators who are relatively new to the field.

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> Another introductory text dealing with the nuts and bolts of measurement, this book will provide health educators with a good overview of educational measurement.

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> This essay probes the important considerations involved in determining cost-effectiveness of programs in the context of educational evaluations. Theoretical as well as practical guidelines are provided.

29. Levin, H.M. (1983). *Cost-effectiveness: A primer* (New Perspectives in Evaluation, Vol.4). Beverly Hills, CA: Sage.

> This text is a splendid introduction to the fundamental concepts of cost analysis on program evaluation. Levin provides succinct descriptions along with advantages and disadvantages for cost-feasibility, cost-effectiveness, cost-benefit, and cost-utility analyses.

30. Linn, R.L., & Slinde, J.A. (1977). The determination of the significance of change between pre- and post- testing periods. *Review of Educational Research, 47*, 121-150.

> This article reviews many of the major issues in the measurement of change from pretesting to posttesting periods and suggests possible alternatives. These authors share the general sentiment of many others in the field that, "more is expected from gain scores than they can reasonably be expected to provide."

31. Lord, F.H. (1963). Elementary models for measuring change. In C.W. Harris (Ed.), *Problems in measuring change* (pp.21-38). Madison: Wisconsin Press.

> This is an early treatise on the problems associated with measuring change. Although this chapter rapidly becomes very technical, the early sections provide an intuitive explanation of the difficulties with using gain scores.

32. Mark, M.M., & Shotland, R.L. (Eds.). (1987, Fall). *Multiple methods in program evaluation* (New Directions for Program Evaluation, No. 35). San Francisco: Jossey-Bass.

Decrying the infrequency with which multiple methods are used in program evaluation, six chapters are offered in this volume, not only advocating multiple methods, but also describing how such program evaluations can be conducted.

33. Oakland, T. (Ed.). (1977). *Psychological and educational assessment of minority children.* New York: Brunner/Mazel.

This collection of essays provides a series of useful suggestions for those who are more sensitive to the possible bias present in educational tests.

34. Popham, W.J. (1988). *Educational evaluation.* Englewood Cliffs, NJ: Prentice-Hall.

This is an introductory text, written in fairly non-technical language, about the field of educational evaluation. Evaluators of health education programs will find it simple to translate the book's contents to their own specialties.

35. Popham, W.J. (1981). *Modern educational measurement.* Englewood Cliffs, NJ: Prentice-Hall.

Varied topics in the field of educational measurement are introduced in this text. Norm-referenced measurement and criterion-referenced measurement are both considered, with the special applications of criterion-referenced assessment emphasized. Chapters on the relationship of testing to teaching and the measurement of affect will be of special interest to health educators.

36. Popham, W.J., & Sirotnik, K.A. (1973). *Educational statistics: Use and interpretation* (2nd ed.). New York: Harper and Row.

This easily read introductory text deals with the fundamental types of statistical considerations needed by program evaluators. It is intended for those who are not particularly comfortable with mathematical approaches to statistics.

37. Riecken, H.W., & Boruch, R.F. (1971). *Social experimentation: A method for planning and evaluating social intervention*. New York: Academic Press.

This is a significant contribution to our thinking about large-scale social interventions, their design and appraisal, provides a useful analysis of the ways that the experimental method can be defensibly employed in connection with major social programs.

38. Rivlin, A.M., & Timpane, P.M. (Eds.). (1975). *Ethical and legal issues in social experimentation*. Washington, DC: Brookings Institution.

Rivlin and Timpane explore the sorts of legal and ethical issues to which evaluators of health education programs must attend.

39. *SPSS-X User's Guide* (3rd ed.). (1988). Chicago: SPSS Inc.

This is a widely used, well organized set of "canned" computer analysis programs for use in the social sciences. Health educators who have occasion to use computer analyses will find the SPSS manual most helpful.

40. Salvia, J., & Ysseldyke, J.E. (1981). *Assessment in special and remedial education* (2nd ed.). Boston: Houghton Mifflin.

This text, intended for individuals who must apply assessment to special education and remedial education, provides measurement insights for health educators who deal with such populations of learners.

41. Scriven, M. (1967). The methodology of evaluation. In R.W. Tyler, R.M. Gagné, & M. Scriven (Eds.), *Perspectives of curriculum evaluation* (pp. 39-83). Chicago: Rand McNally.

This seminal article was the first essay in which Scriven distinguished between the now commonly accepted formative and summative roles of evaluators. Scriven ranges over a wide variety of topics, emphasizing the importance of comparative appraisals of two or more programs' merits.

42. Scriven, M. (1972). Prose and cons about goal-free evaluation. *Evaluation Comment, 3*, 1-4.

In this essay Scriven offers goal-free evaluation as an antidote to excessive preoccupation with the program staff's expressed objectives. Scriven argues that evaluators should attend to the results produced by a program, not the rhetoric of its program goals.

43. Siegel, S. (1956). *Nonparametric statistics for the behavioral sciences.* New York: McGraw-Hill.

This is the classic treatment of nonparametric statistical techniques. Although a bit out of date these days, Siegel's text offers the most easily understood treatment of nonparametric statistical procedures. Because of the author's admitted zealousness in support of nonparametric techniques, those using Siegel's text should also consult a critique of it by Robert Savage, *Journal of American Statistical Association*, 1957, *52*, 331-344.

44. Suchman, E.A. (1967). *Evaluative research: Principles and practice in public* service *and social action programs.* New York: Russell Sage Foundation.

In this volume, Suchman provides extensive coverage of the application of the experimental research model in conducting evaluations. Although evaluation has come a long way since this book was written, the volume provides a clear description of the predominant conceptualization of evaluation in the past decade.

45. Tukey, J.W. (1977). *Exploratory data analyses.* Reading, MA: Addison-Wesley.

Creative approaches to displaying and understanding data are provided by Tukey in this excellent demystification of data analysis.

46. Walberg, H.J., Postlethwaite, T.N., Creemers, B.P.M., & de Court, E. (Eds.). (1987). Educational evaluation: The state of the field. *International Journal of Educational Research, 11* (1).

This special issue, as its title suggests, presents comprehensive review of field of program evaluation from authors based in the U.S. and abroad.

47. Webb, E.J., Campbell, D.T., Schwartz, R.D., Sechrest, L., & Grove, J.B. (1981). *Nonreactive measures in the social sciences* (2nd ed.). Dallas: Houghton Mifflin.

This charming volume provides readers with a series of powerful and clever tactics to secure data, particularly of an affective nature, without sensitizing respondents to the evaluator's purposes.

48. Weiss, C.H. (1972). *Evaluation research: Methods of assessing program effectiveness.* Englewood Cliffs, NJ: Prentice-Hall.

Weiss offers a pithy overview of prominent program evaluation considerations including the formulation of questions to be addressed, the design of the evaluation study, and the utilization of evaluation results. A paperback, this brief book (160 pp.) offers an excellent introduction to what Weiss refers to as "evaluation research."

49. Windsor, R.A., Baranowski, T., Clark, N., & Cutter, G. (1984). *Evaluation of health promotion and education programs.* Palo Alto, CA: Mayfield.

This text is a useful introduction to the evaluation of health education programs. Windsor et al. have provided readers with a series of health-relevant examples to illustrate their explorations.

50. Worthen, B.R., & Sanders, J.R. (1973). *Educational evaluation: Theory and practice.* Worthington, OH: C.A. Jones.

This volume was one of the earliest compilations of various program evaluation models applied to education. Evaluation theorists whose views are presented in this book include Stake, Cronbach, Scriven, Tyler and others. Worthen and Sanders have authored sections of the book and have included a series of original chapters by a number of evaluation specialists. While focused on educational evaluation in general, the volume is of substantial relevance to program evaluation of health education programs.

51. Worthen, B.R., & Sanders, J.R. (1987). *Educational evaluation: Alternative approaches and practical guidelines.* New York: Longman.

This introductory text is organized around a series of alternative approaches to educational evaluation, including the "objectives-oriented" and "advisory-oriented" approaches.

52. Worthen, B.R., & White, K.R. (1987). *Evaluating educational and social programs: Guidelines for proposal review, onsite evaluation, evaluation contracts, and technical assistance.* Boston: Kluwer-Nijhoff.

This volume provides a first-rate series of practical guidelines dealing with varied aspects of proposal review, onsite evaluation, evaluation contracts, and technical assistance.

53. Zdep, S.M., & Rhodes, I.N. (1977). Making the randomized response technique work. *The Public Opinion Quarterly, 40,* 531-537.

This easily read essay describes the randomized response technique, a procedure used to obtain sensitive information from respondents more accurately than if respondents were directly asked about sensitive information.